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THE JOURNAL

1904

OF

COMPARATIVE MEDICINE

AND

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THE JOURNAL
OF
COMPARATIVE MEDICINE AND VETERINARY ARCHIVES.

VOL. XXIII. *JANUARY, 1902.* No. 1.

REPLY OF PROFESSOR E. NOCARD TO PROFESSOR KOCH.[1]

I CONSIDER it a great honor to salute, in the name of French bacteriologists, the greatest bacteriologist of the whole world. To this tribute of admiration and respect I ask of this illustrious savant permission to make public acknowledgment of the gratitude which I expressed to him nearly ten years ago, on an occasion never to be forgotten, when I was able to judge of the elevation of his mind, the nobility of his character, and the rare goodness of his heart.[2]

A communication from Koch is always an event; that of to-day will go far and wide. Parts of it charm me and fill me with content; other parts trouble me—they appear to me full of danger.

I may be thought audacious to discuss the work of a master who is authority in all matters which concern bacteriology, and above all in regard to tuberculosis. I know that my intervention is somewhat dangerous. However, the interests at stake are so important, and the conclusions from Koch's work so fraught with grave consequences, that I cannot hesitate to respond to the invitation of our illustrious President, Lord Lister, to speak my sentiments on the subject.

That which pleases me in the communication of Koch is that he justifies in a clear manner the efforts of those who protest against

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[1] Delivered in St. James' Hall, London, July 27, 1901, before the British Congress on Tuberculosis. Translated from "La Presse Médicale," July 27, 1901, by Mazyck P. Ravenel, M.D.

[2] Allusion is here made to the sympathetic devotion shown by Professor Koch to the French Commission, composed of Messrs. Roux, Strauss, Nocard, and Thuillier, sent to Egypt in 1883 to study the epidemic of cholera. It will be remembered that in forty-eight hours Thuillier was carried off by the disease.

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extreme methods in the prophylactic measures designed to protect the human race against the dangers of bovine tuberculosis. For some years a salutary reaction has taken place against the extreme measures at first adopted. The communication of Koch will accomplish this end. Perhaps it goes to extremes in the inverse sense, and I fear greatly that after having advised excessive and absurd measures against imaginary dangers people may now neglect to take precautions against the real dangers which exist for the public health in bovine tuberculosis.

I have always held—and recently again at the Berlin Congress on Tuberculosis—that bovine tuberculosis plays but a small part in the spread of human tuberculosis; but no matter how small this part may be, it is undeniable, and it would be making a great mistake to leave it out of consideration.

Koch has not succeeded in producing tuberculosis in cattle inoculated by various methods with cultures or material from human sources. He concludes from this that cattle are refractory to human tuberculosis; that man has nothing to fear from tuberculosis of cattle, and that it is useless to take precautions against it.

With all the respect due to the illustrious savant, but with all the strength of profound conviction, I wish to say that his experiments do not justify such conclusions.

It is a principle of the experimental method that negative results, however great their number, cannot outweigh positive facts. There exist positive facts proving that it is possible to infect cattle with tuberculous matter from man. The first of these are the experiments of my eminent master, Professor Chauveau. I regret extremely that his duties prevented him from taking part in this Congress. He could have presented them with the authority which belongs to a master of experimental medicine. I will endeavor to take his place and to show the value of these facts from the point of view which now engages us.

Among his numerous experiments on this subject there are four which are particularly strong, in which calves aged from five to ten months were infected by the digestive tract, or by intravenous injection, with tuberculous material from man (acute phthisis or caseous pneumonia). These four animals were killed at different times up to fifty-nine days, and at the autopsy showed very important lesions, manifestly the result of the experimental infection.

In two of the three calves infected by ingestion the lesions were confluent in the intestine, the mesenteric glands, and on the peritoneum. In the third calf, on the contrary, while there were slight lesions of the abdominal organs, there existed very important ones in the glands related to the first part of the digestive tract, namely, the retropharyngeal and œsophageal glands.

Some will, no doubt, raise the objection to these experiments, that dating back to a period so far in the past when tuberculin was not known it was impossible to be sure that the calves used in the experiment were free from tuberculosis. Chauveau had foreseen this objection. He had chosen young calves for his experiments, because tuberculosis in calves is extremely rare. He procured these calves in a district where tuberculosis of cows was unknown, and finally in each experiment he preserved as controls an equal number of calves of the same age and origin, which were killed at the same time as the others, and were found to be absolutely free from tuberculosis.

Old as they may be, these experiments of Chauveau have on that account none the less value as positive facts against which negative experiments cannot prevail, however numerous they may be. Furthermore, several members of this Congress are announced to communicate analogous facts with the proofs.

These facts prove that although it may be difficult to communicate human tuberculosis to cattle, it nevertheless succeeds at times. How can we explain these different results, apparently contradictory? It is difficult to do this with certainty, for we cannot pretend that we are able to reproduce exactly in our experiments all the conditions of natural infection. It is, however, possible to give a plausible explanation. It is a well-known general law that the gradual adaptation of any parasite to a medium, inert or living, in which it can succeed in developing, confers on it the aptitude to develop more easily in media like the first. This is true for the bacillus of tuberculosis as for all other microbes. We know how difficult it is to obtain the first growth of the bacillus of Koch even on the most favorable culture medium. The first culture is always thin and scanty, but when once accustomed to our culture medium it grows afterward quite quickly and abundantly. What is true of inert media is still more true, *a fortiori*, of living media. Everyone knows that the bacillus of "rouget du porc" develops with difficulty at first in the organism of the rabbit. In order to kill one rabbit with certainty it is necessary to inoculate three or four animals, and death only occurs after four or five days, sometimes longer; but by passing this microbe from rabbit to rabbit it rapidly acquires such a degree of virulence that it kills rabbits in a few hours. But this bacillus, although it becomes so virulent for rabbits, has lost all its virulence for swine, from which it comes originally; we can inoculate swine with large doses without killing them and even without making them sick.

What I have said of the bacillus of "rouget du porc" applies also, and nearly as exactly, to the trypanosoma of dourine in the horse. This parasite of a higher order is inoculable into dogs, the white mouse, and the white rat among other animals. After some passages from mouse to mouse, or from rat to rat, it acquires such a degree of virulence that the animals die in a few days, showing an enormous number of trypanasomes in the blood. When, however, we inoculate the rat or mouse with this same trypanosoma after a certain number of passages through dogs, it no longer succeeds in killing them, nor does it make them sick. The prolonged adaptation of the trypanosoma to the organism of the dog causes it to lose its power of developing in the organism of the white mouse or white rat, but—a most curious thing—the trypanosoma of the dog remains always just as virulent for the horse.

Finally, I have shown that the tubercle bacillus from man or from cows cultivated in the peritoneal cavity of the chicken, protected from phagocytic action—thanks to the protection of a collodion sac—acquires, little by little, the characters of the avian tubercle bacillus, and becomes incapable of killing guinea-pigs, or kills them with lesions like those of avian tuberculosis.

All these facts lead me to think that the results obtained by Professor Koch proceed from causes of the same kind. Cattle rarely take tuberculosis from man; but when, for some reason or other, the resistance of the cells is modified, diminished, or suppressed, the human bacillus can multiply and invade the organs of the subject in which the resistance has been overcome. After this the bacillus, adapted to its new surroundings, is able to develop in other healthy cattle, which would show themselves refractory to the action of this same bacillus if it came directly from man. Let us admit, for an instant, that cattle are really refractory to human tuberculosis: has one the right to conclude from this that the reverse is equally true? No! a hundred times, no! This would be contrary to all the principles of the experimental method. It would be, above all, contrary to facts. If experimental facts are lacking, and for cause, clinical facts abound which prove the possibility of the transmissibility to man of tuberculosis of cattle. Many have seen veterinarians who have wounded themselves while making autopsies on tuberculous cows. Some have gotten well, thanks to prompt and radical surgical intervention, such as our colleague Jensen, of the Veterinary School of Copenhagen; others, less fortunate, have succumbed to the progressive evolution of the infection, such as our brethren Moses, of Weimar, and Thomas Walley, of the Royal Veterinary College of Edinburgh.

Furthermore, there exist numerous authentic instances of infection by the use of milk coming from cows with tuberculous mammitis. The best known and most authoritative concerns one of the daughters of Professor Gosse, of Geneva. It has almost the value of an experiment.

Finally, the work of the great English hygienist, Thorne-Thorne, proves as well as evidence the reality and gravity of the danger. During fifty years the mortality from tuberculosis in England has diminished 45 per cent.; during this same time abdominal tuberculosis of infants has increased 27 per cent. How can we explain these figures, so different? It is only for the last fifty years that you have done much in this country toward the cleansing of the house, the workshop, public places; lessening in this way the chances of infection by means of the respiratory tract, much the most common mode for adults; but you have done nothing against the dangers of infection by the digestive tract, which is the most frequent method for children artificially nourished.

Thorne-Thorne does not hesitate to attribute the increase of tuberculosis in young children to the absence of all regulations in regard to the dairy, and of all measures prohibiting the use of milk coming from cows with tuberculosis of the udder. All those who study this question of milk agree with the opinion of Thorne-Thorne. It is for these reasons that I will continue to teach to-day as yesterday—"Mothers of families, do not give milk to your babies unless the milk has been boiled."

OUR State Veterinary Boards of Medical Examiners continue to grow in number, and each new board has some merit of advantage over its predecessors, and each new law adds some saving clause or feature over those which already exist. Gradually the work of those schools equipped to properly educate students for our profession is being defined by these laws, and the advance of the curriculums of the schools is a good omen of the future and a fitting tribute to those who have led and directed the work of establishing these safeguards to an unsuspecting public.

MUNICIPAL MEAT-INSPECTION LEGISLATION, WITH SPECIAL REFERENCE TO THE LAW AND THE RULES AND REGULATIONS OF THE BOARD OF HEALTH OF THE CITY OF NASHVILLE.[1]

By G. R. White, D.V.S.,
NASHVILLE, TENN.

The hopeless task has been assigned me of showing within the limits of this short paper the merits of a most perfect city ordinance as well as the contents of what we consider a complete set of rules and regulations governing the slaughter of animals and the sale of fresh meat in the city of Nashville, together with a few facts relative to municipal meat-inspection legislation.

Many of the members present on this occasion will readily recall the wretched and inefficient system of meat-inspection which confronted them when this Association honored our graceful Southern city by meeting within its confines in the year 1897. Perhaps many of you who are acquainted with the then shameful situation were surprised upon receiving the official programme of this meeting to know that reformation had taken place, and that we were able to come before this meeting with a paper of such a character.

Meat-inspection has been advocated and practised among the Jews and Arabs from time immemorial, and has been one of the principal topics for study and reflection before this Society at each annual meeting during the past decade. It has also been discussed by the different medical organizations throughout the country as well as by boards of health and live-stock sanitary boards until its importance, in fact, its absolute necessity, ceases to be a doubt with the thinking meat-consuming populace of every city.

Since its importance is no longer questioned, then why may we not be permitted to discuss the fundamental principle of a meat-inspection system, viz., legislation? Without proper legislation our efforts are in vain, and nothing can be done toward condemning that meat which is diseased or otherwise unwholesome, and to punish the unscrupulous butcher and meat vendor who are responsible for such flesh being offered for sale as human food. There is no article of food which deserves more attention at the hands of the consumer than this one demands; however, it is surprising how little some people regard and how meagrely the lawmakers of most American cities grasp this important question. Since being associated with the Board of Health of the City of Nashville for the past three years as its meat- and live-stock inspector the writer has obtained actual facts which make him deeply sensible of its importance.

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[1] Read at the Thirty-sixth Annual Meeting of the American Veterinary Medical Association, Atlantic City, September, 1901.

A bit of history of the passage of our meat-inspection law will not be amiss at this immediate juncture.

Since it is the function of the daily press of a city to instruct the people in all branches of science and all forms of knowledge, as well as to gather and condense news for them, thereby advancing their political and social interests, and realizing that by means of the press the public would learn to have more respect for the interested veterinarian and to more fully appreciate the work which the veterinary profession as a whole are constantly struggling so earnestly to accomplish, it behooved us as health guardians interested in matters pertaining to meat-inspection to first secure the indorsement and support of the various papers before inaugurating a movement toward establishing a more protective meat-inspection system. After we had the assurance that both of our influential daily papers favored a more perfect and protective meat-inspection law, and had promised to render us all possible assistance and to do or say nothing detrimental to our efforts in that direction, the bill was drafted without further ceremony, and submitted to the health board for their consideration. The Board of Health at that time consisted of the Mayor, the Chairman of the Board of Public Works and Affairs, and City Health Officer. After mature consideration these gentlemen readily consented to unanimously recommend the bill to the City Council for passage. The Council was "thunderstruck; in fact, almost stampeded, when this bill was introduced by one of its youngest yet most intelligent and progressive members. The bill passed first reading, and was referred to the Sanitary Committee for consideration and recommendation. I presume most of you are slightly acquainted with the average sanitary committee of a municipal council, but for the benefit of those not yet so fortunate as to have received an introduction to this august body of sanitarians I will say that they have about as much idea about sanitation and sanitary problems as a hog has about Sunday. I assure you that the Sanitary Committee of the Nashville Council is no exception to the rule; however, I will say in justice to two of the members that they were above the average and supported our measure from the beginning. Even with their support and influence we had a long and hard fight to secure the indorsement of the other three members. In spite of their opposition they finally consented to yield if the Board of Health would make one or two concessions; this the Board did, and the bill went before the Council at their next regular meeting with the unanimous indorsement of the Sanitary Committee and the Board of Health. After a stormy session of debate and much wire-pulling on the part of some butchers and opposing members, the bill passed the Council with only one dissenting vote. The Mayor approved the same, and it became a law.

About this time the charter of our city was changed by the State Legislature, and one among the many changes was that the Board of Health should consist of three reputable practising physicians appointed by the Mayor instead of the political Health Board which had previously existed.

Three physicians were appointed, and it was then their duty to adopt rules and regulations and to enforce the meat-inspection ordinance in the face of a storm of opposition on the part of butchers and live-stock dealers as well as producers. The following is the law which we succeeded in having passed, and I have yet to see a meat-inspection ordinance on the statute books of any American city which is its equal or superior.

City Ordinance Regulating the Slaughter of Animals and Sale of Fresh Meat.

Be it Enacted by the Mayor and City Council of Nashville:

Section 1. That all ordinances and regulations heretofore passed and now in force for the inspection of meat be and the same are hereby repealed, and the following are adopted in lieu thereof:

Sec. 2. That the City Board of Health is hereby invested with the same inquisitorial power and authority to inspect in any place, public or private, any cattle, sheep, hogs, lambs, or veal calves for sale for slaughtering purposes, or that have been slaughtered, for one mile beyond the corporate limits as they possess and can exercise within the city.

Sec. 3. That from and after the passage of this act it shall be unlawful for any person, firm, or corporation to slaughter, sell, or offer to sell the meat of any animal not considered "game," intended for human food, within the city of Nashville, unless the same has been inspected and approved by the officers appointed and empowered by the City Board of Health, or unless such meat bears the mark, stamp, or tag indicative of inspection by the Bureau of Animal Industry, United States Department of Agriculture: *Provided*, however, that this section shall not be construed to prohibit producers residing beyond the limits herein provided from killing animals and selling the same within the city; but no such animals or parts of animals shall be sold until the same shall have been inspected by the inspector in such places as may be designated by the City Board of Health.

SEC. 4. That such meat when so inspected and approved shall be marked, stamped, or tagged by inspectors of said City Board of Health, and the same shall not be allowed upon the stalls of any market, whether public or private, unless so stamped, marked, or tagged, after having been inspected and approved by inspectors of the Board of Health. All tags shall be kept for thirty (30) days from date of issuance, which tags shall bear date of inspection and be at any time subject to examination by the meat and live-stock inspector or by any police officer of the city of Nashville; and it shall be unlawful for any meat dealer to remove the official tag, mark, or stamp until after the meat is sold to the consumer, and no tag, mark, or stamp shall again be used.

SEC. 5. That any person, firm, or corporation who shall counterfeit or knowingly alter, deface, or destroy any of the tags, marks, or stamps of the City Board of Health, shall, upon conviction, be fined not less than ten ($10) dollars and not more than twenty-five ($25) dollars, and, in default of payment, by imprisonment for not less than ten (10) days and not more than thirty (30) days for each offence.

SEC. 6. That the Nashville Abattoir and yards in connection therewith, or such other places as may from time to time be fixed by the City Board of Health, are hereby designated as places at which animals and meats to be used for human food within the city of Nashville and within its police jurisdiction are to undergo an ante-mortem and a post-mortem inspection, and there be tagged, marked, or stamped by the meat and live-stock inspector, except such meat as is provided for in the latter clause of Section 3.

SEC. 7. That this ordinance shall not in any manner apply to the sale of salt, pickled, smoked, or canned meats of any kind.

SEC. 8. That not more than the following prices may be charged and collected by the person, firm, or corporation who now are or who may hereafter be operating the Nashville Abattoir, or such other places as may be fixed by the Board of Health, for slaughtering animals intended for human food within the city of Nashville, to wit: cattle, fifty (50) cents; veal calves, twenty-five (25) cents; hogs, sheep, and goats, fifteen (15) cents; for cold storage: cattle, fifty (50) cents; veal calves, hogs, sheep, and goats, fifteen (15) cents.

SEC. 9. That all animals intended for human food in the city of Nashville and within its police jurisdiction shall undergo an ante-mortem examination before being allowed to pass to the slaughter-room, and a post-mortem examination on the floor of the slaughter-room. All animals, carcasses, or parts of carcasses found on inspection to be diseased or unwholesome from any cause shall be condemned and marked in such a manner as the inspector deems best to indicate its condemnation. All condemned animals, carcasses, or parts of carcasses shall be disposed of otherwise than for food in such manner as the inspector directs.

SEC. 10. That to carry out the provisions of this ordinance the City Board of Health are hereby authorized to appoint a meat and live-stock inspector, at a salary not to exceed one hundred ($100) dollars per month, who shall be subject to removal for cause. The inspector shall give bond in the sum of two thousand ($2000) dollars for the faithful performance of his duties, and make a monthly report of all his official acts in the inspection of meats and live-stock to the City Board of Health, and a monthly report to the Board of Public Works of all professional services rendered the sick and disabled stock of the various departments.

SEC. 11. That the meat and live-stock inspector shall be a qualified veterinarian, a graduate of an organized and recognized veterinary college, and of good standing in his profession.

SEC. 12. That the meat and live-stock inspector is hereby clothed with police powers, and shall wear a badge while performing his official duties.

SEC. 13. That the meat and live-stock inspector shall hold an ante-mortem and a post-mortem examination of all animals intended for human food within the city of Nashville or within its police jurisdiction, and shall tag, mark, or stamp such animals as in his judgment are suitable for human consumption. He shall visit from time to time the various meat markets of the city and examine all meat therein, to see that same is properly tagged, marked, or stamped. He shall render all required professional services to the sick and disabled live-stock of the various departments. He shall investigate all contagious or infectious diseases which are reported to the City Board of Health, as is provided for in an act of the City Council, entitled "An Ordinance to prevent the spread of communicable diseases among domestic animals in the city of Nashville."

SEC. 14. That the City Board of Health shall have the power and authority to adopt such rules and regulations as may from time to time become necessary to carry out the provisions of this ordinance.

SEC. 15. That the person, firm, or corporation violating any of the provisions of this ordinance, or any of the rules and regulations adopted by the City Board of Health, as is provided in Section 14 hereof, shall upon conviction be fined not less than ten ($10) dollars nor more than twenty-five ($25) dollars for each offence. Each animal, carcass, or part of carcass slaughtered or sold in violation of this ordinance shall be considered a separate offence.

SEC. 16. That this ordinance shall take effect from and after its passage, the welfare of the city requiring it.

Passed July 27, 1899.

Approved July 31, 1899.

R. H. DUDLEY, Mayor.

Attest: J. P. Byrne, Recorder.

In compliance with the above ordinance the following rules and regulations were adopted by the Board of Health:

RULES AND REGULATIONS FOR THE INSPECTION OF LIVE-STOCK AND FRESH MEAT.

By virtue of the authority conferred upon the Board of Health of the city of Nashville, under the provisions of an ordinance passed July 27, 1899, and approved July 31, 1899, entitled "An Ordinance regulating the slaughter of animals and the sale of fresh meat," the following rules and regulations are hereby prescribed:

1. Slaughter houses, except those specified in the above-mentioned ordinance, which are designated as places for ante-mortem and post-mortem inspection, shall be constructed according to the plans and specifications of the Board of Health. And it is further ordered that all animals slaughtered and all meats tagged and stamped under the supervision of the inspector of the United States Department of Agriculture, at any packing house, will meet the requirements of these rules.

2. All livers, lungs (lights), spleens (melts), and tongues of all animals slaughtered shall be hung on racks provided for that pur-

pose, immediately after the slaughtering and removal from the carcasses of the animals, and shall there remain until the inspector of the Board of Health shall have examined and inspected the same, and shall not be removed therefrom except by permission of said inspector; and all such organs shall be marked by the butchers on placing them on the rack in such manner that the said organs can be easily identified with the carcasses from which they have been removed.

3. At least one inch of the diaphragm or skirt of all carcasses of slaughtered animals shall be left on the animal slaughtered until the meat-inspector shall have examined, inspected, and passed the same, and all the parietal pleura, or the lining of the chest cavity, and the parietal peritoneum or casing of the abdominal cavity, ordinarily removed in the process commonly known as "stripping," shall be allowed to remain on the carcass and shall not be removed therefrom by the processs known as "stripping" until after examination by the inspector.

4. No person shall urinate, defecate, or commit any nuisance whatsoever in the building or buildings, or on the premises adjacent thereto, except in places properly provided for that purpose.

5. All slaughtering and dressing of animals shall be completed, and all offal, refuse, horns, etc., shall be removed daily by 5.30 P. M., and the tubs, buckets, or other receptacles in which they are deposited shall be cleansed and disinfected from time to time, as the meat and live-stock inspector may direct, and the floors, walls, etc., of the slaughtering rooms shall be flushed, washed, and thoroughly cleansed each day.

6. The hours for inspection at all establishments designated as places for inspection shall commence at seven (7) A. M. and continue until five-thirty (5.30) o'clock P. M.

7. In the event of rejection or condemnation of any animal by the inspector, permission is hereby granted the owner of such animal so rejected or condemned to slaughter another one, in order to replace same, even after the hour above mentioned; provided the inspector has due notification by the owner of his intention to slaughter another animal to replace the rejected or condemned one, and it shall be the duty of the inspector to remain until said animal is dressed and inspect same, and, if approved, said carcass shall be marked, stamped, or tagged.

8. The owner of a condemned animal or carcass shall have the right to view same before it is disposed of, provided he does so within twenty-four (24) hours after it is condemned.

9. All carcasses or parts of carcasses consigned to the rendering tank shall be "tanked" in the presence of the official inspector of the Board of Health.

10. All meat markets or shops, and all refrigerators or ice-boxes or other places where fresh meat is stored or handled, and all wagons used in the transportation of fresh meat, shall be kept in such sanitary condition as the Board of Health or the meat and live-stock inspector may approve.

11. No carcass or part of carcass shall be allowed to hang on the outside of markets, shops, or stores exposed in such a manner as to become contaminated by dust or dirt.

12. All carcasses or parts of carcasses sold, handled, or delivered from wagons or other vehicles shall be kept covered in such manner as to prevent contamination by dust or dirt.

13. All carcasses or parts of carcasses offered for inspection by the producer shall be hung on hooks provided for this purpose in the north end of the market house, and there remain until inspected and approved by the meat and live-stock inspector.

14. Each carcass or part of carcass offered for inspection by the producer shall be accompanied by the lungs (lights), liver, heart, kidneys, spleen (melt), and tongue.

15. The lungs (lights), liver, heart, and kidneys of all animals, except cattle, shall be attached to the carcass in such manner as to identify the animal to which they belong.

16. The lungs (lights), liver, heart, and kidneys of cattle shall accompany the carcass and be certified by the owner or person in charge of same as being those removed from the carcass or part of carcass then undergoing inspection.

17. All carcasses or parts of carcasses offered for inspection by the producer shall be inspected under the same conditions and limitations as are provided in Rule 3.

18. The hours for the inspection of producers' meat shall begin at 6 A. M. and 4 P. M. and continue until such inspection is completed.

19. In special cases where, in the opinion of the meat and live-stock inspector, the circumstances or necessities of individual cases warrant the same, that officer may grant special permits to dispense with the observance of any of the foregoing provisions.

20. All tags, seals, stamps, and other devices used in marking, stamping, or tagging animals and dressed carcasses shall be in possession of the meat and live-stock inspector, and used by him or under his supervision or direction. The inspector in charge of each place of inspection is instructed to use such safeguards as in

his judgment are necessary to account for every tag and seal issued to them, and to have the work of affixing so carefully supervised that nothing but inspected meat will bear the official mark, stamp, or tag of the Board of Health of the city of Nashville.

21. The inspector, in determining what constitutes a diseased animal or meat unwholesome and unfit for consumption, shall be guided by the specifications contained in the regulations of the United States Department of Agriculture.

22. A copy of these rules and regulations shall be printed and kept wherever fresh meat is inspected, stored, or offered for sale in the city of Nashville or within its police jurisdiction.

NOTE. The above rules were adopted by the City Board of Health, in regular meeting, on February 25, 1901.

The aforementioned law, in conjunction with the above rules and regulations, gives the Board of Health absolute control of the meat-supply of our city.

We are now confronted with the yet unanswered problem why all municipalities are not able to establish and maintain a protective system of inspection of their meat-supply. This I hope Dr. C. A. Cary, who has just preceded me with his most excellent paper, has answered to your entire satisfaction. In my opinion, "politics" is the greatest obstacle to be overcome. It is to be presumed that many of the members present on this occasion have had more or less experience before State Legislatures and City Councils in their endeavor to secure legislation for the protection of the unsuspecting public. Those of you who have had such experience appreciate what "high life before a legislative body" means, and how difficult it is to secure their co-operation and support in the adoption of any meritorious health measure. Certain scientific facts seemingly inherent to the average "law-maker" are well known and their importance duly appreciated by the educated and conservative members of the veterinary profession, and especially by the oldest and most experienced members of the Association. Many of you no doubt have long since concluded that if any human being or set of human beings are capable of doing the impossible it is a "ward politician" when he becomes a member of a "law-making body" of a municipality.

Apparently the veterinary profession of America during its years of existence has had but little if any perceptible influence in formulating the fundamental laws governing the inspection and sale of meat and milk in the majority of American cities. This is a remarkable phenonnon in our professional history—remarkable because no intelligent or scientifically educated gentleman in possession of the facts disputes the ability and integrity of the great majority of the members of the veterinary profession; and it is still further remarkable when we consider the great number of our profession, laboring incessantly for the enactment of laws for the protection of public health, who do not seek, nor do they desire, political office or distinction. In my opinion, the explanation of this singular situation is to be found in the fact that the veterinary profession and this Association of veterinarians have in the past failed to concentrate and direct their educative efforts and influence to the right source. I said apparently the veterinary profession of the country had exercised but little influence toward shaping meat and milk-inspection laws in the majority of American cities; I repeat it, emphasizing the word *apparently*, as I am not now dealing with the direct or the indirect influence of individual members of the veterinary profession, but am speaking of the profession as a collective body in having legislation enacted. The thirty-eight years of life of this organization, and its ever-recurring failure to induce our National Congress, State Legislatures, County Courts, and Municipal Councils to pass its proposed measures, demonstrates the necessity for different methods of procedure from any which have been advocated in the past if this Association expects to have its proposed measures enacted into laws. A striking example of our recommendations being ignored, and collapse of our hopes, will be found in the fate of the recently proposed army veterinary legislation, and so it is with many other propositions from the veterinary profession.

As a general proposition, if the lessons of the past prefigure a truth of the future it will be a useless waste of time, as well as an invitation to the worry and vexation of disappointment, to go before the "law-makers" with our measures unless we first get the indorsement and co-operation of influential citizens, their masters—people upon whose votes and influence they depend for indorsement of their official acts and re-election.

There is an inseparable connection between veterinarians and veterinary sanitary laws, and it is the duty of our profession to stamp its impress upon legislation of the nation, State, county, and municipality, to the end that the veterinary profession may not suffer in the estimation of the public by the passage of bad or inferior laws which have in them no real merit or force.

We should take such an interest in the passage of good and wholesome legislation as will inspire the public with confidence in our integrity, ability, and professional interest in matters pertaining to public health. Veterinarians are in a large measure held responsible, and sometimes unjustly censured, for all municipal meat-inspection legislation, whether it be good, bad, or indifferent. Since this is true, then let us, as a glorious and time-honored profession which many noble and scholarly men and women respect and admire, set our heel firmly upon the neck of the political shyster as a law-maker and the "butcher" as a competent meat-inspector, thereby to a certain extent preventing them from bringing reproach upon a profession held most dear to all present on this occasion as well as every veterinarian who appreciates his profession.

I will close with the admonition that when you have succeeded in gaining the confidence of the people, and have made your impress upon them, then, and only then, will there be developed the proper relationship between our profession and the municipal law-maker; and you will at that time be able to accomplish something toward veterinary sanitary legislation that will be a protection to the public as well as of lasting and permanent benefit to the veterinary profession.

A PROPOSAL OF A NEW PLAN FOR CONTROLLING TUBERCULOSIS OF CATTLE CONSERVATIVELY.

By Columella.

The tuberculosis problem is to-day one of the most important questions before breeders of pure-bred cattle and dairymen. Evidence from every side shows that this disease is becoming more prevalent in nearly all parts of the United States, just as it is in those countries in Europe in which severe and expensive repressive measures are not in operation. Meat inspectors in slaughter-houses in the West, as well as in the East, report more tuberculosis in the cattle and swine examined by them.

The incontrovertible fact is that tuberculosis has a strong and extensive foothold in this country, and the experience of Europe furnishes us with every reason to believe that unless well-planned measures against this disease are instituted on a broad scale, and are enforced thoroughly, the conditions will in time become as bad as they are in the extensively infected countries of Europe.

This paper is not to furnish proof that tuberculosis is a source of great loss to the live-stock owner and, in some stages, of danger to consumers of milk. These points are fully covered elsewhere.[1]

It may be here stated, however, that there is no disease or influence that interferes more with the grading up of cattle in the Eastern and Central States than the losses that come from tuberculosis.[2] More good herds are ruined and more good breeders are discouraged by tuberculosis than by any other cause.

For some time it has been evident that something should be done by governmental agencies to repress this disease. The national government and many States have instituted measures with this end in view. The various regulations that are in force differ widely in their scope and effectiveness. Most of those in use by the States are tentative and experimental. That they are more or less unsatisfactory is shown by the fact that they are changed every few years, and none of them can be said to be established.[3]

Under some of the systems now in use good work is being done, but on too small a scale : all of the State operations lack scope. For example, tuberculosis is being eradicated from many individual herds in Pennsylvania; but the difficulty of keeping these herds free from tuberculosis is great on account of the fact that there remain so many tubercular herds to reinfect them. While progress is being made, it is slow.

The important question arises: Can the repression of tuberculosis be carried on more rapidly or effectively with the funds that are available? A large portion of the money allotted to every plan for the repression of tuberculosis is used in paying for tuberculous cows. In some States these cows are killed in slaughter-houses, and their flesh is used as food if the disease is not too far advanced. In other States such cows are killed in fertilizer factories or on farms, and their flesh is not used for food purposes. In the former case there is some saving; in the latter case the saving is insignificant.

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[1] Pearson and Ravenel, Bulletin No. 75, Pennsylvania Department of Agriculture; Salmon, Bulletins Nos. 32 and 33, Bureau of Animal Industry, United States Department of Agriculture; Repp, American Medicine, vol. ii., Nos. 17 and 18.

[2] "Several years ago the writer of this communication received a letter from a good citizen in the State of Iowa, asking him to name some breeder of good cattle of a certain breed from whom the inquirer might purchase some choice stock. As a result this Iowa party came to Wisconsin and purchased seven head of pure-bred stock, paying a good price for them. In taking this stock back to Iowa he carried back tuberculosis in the most virulent form it ever affected a herd in this State. He lost all of the seven animals purchased, through death by tuberculosis, and contaminated his whole herd so that he was forced to sacrifice all of the dairy animals he had. And this is but one of more than a dozen places where tuberculosis was spread by sales from a single herd of pure-bred cattle." (Prof. W. A. Henry, in Hoard's Dairyman, December 28, 1900.)

[3] For a review of these methods, see Pearson and Ravenel, Bulletin No. 75, Pennsylvania Department of Agriculture.

A great many cows discovered to be tuberculous by the use of the tuberculin test are in the early stages of the disease, and their capacity to produce calves and milk or to put on flesh is not yet impaired. Since there is no means at present to distinguish between the immediately dangerous and prospectively dangerous reacting cows, it is necessary to isolate all such cattle and destroy them or maintain them as a separate herd.

Under the plan proposed and extensively used by Professor Bang tuberculous cows are kept in separate herds, their calves are removed from contact with them soon after birth, and their milk is Pasteurized, and is sold or is used for making butter. By this means tuberculosis is being eradicated in Denmark at a comparatively rapid rate.

The Danish plan has been proposed for use in the United States. It has been used experimentally in this country in a number of instances with success so far as the repression of disease is concerned. It has been described in many speeches, reports, and papers. It has been offered to the farmers of Pennsylvania, along with some aid from the State; but it has failed to find acceptance from the owners of cattle to an extent that makes it of general service. There must be a reason for this. The reason appears to lie in the difficulty that farmers experience in disposing of the milk of a few reacting cows—because such milk has to be Pasteurized, and is feared—and in the increased labor and expense of maintaining a separate herd and enforcing the necessary precautions.

When the Bang system is proposed to the owner of reacting cows he usually says, " No, it is not worth while; give me the indemnity the State allows, and away with them." If the States were willing or could afford to thus buy and destroy all tuberculous cows no doubt the disease could in time be eradicated, but at terrific, if not impossible, cost.[1]

Cannot some way be devised to encourage farmers to adopt the Bang plan, or to otherwise stop the loss of at once destroying tuberculous cows that have not yet lost their usefulness, but which must be removed from contact with healthy cattle?

The expense and trouble of Pasteurizing milk is not great if all of the milk is handled in the same way, and if the operation is conducted on a scale large enough to justify the purchase and economic use of modern and appropriate apparatus. The trouble of keeping and caring for a herd of tuberculous cows is not—except in reference to the calves—greater than in keeping and caring for a herd of healthy cows. The extra trouble and expense come chiefly from dividing the original herd and in caring for the two parts separately.

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[1] To the statement sometimes made that "tuberculosis is a necessary evil," it may be said that it is not a necessary evil until a cow with it is brought into the herd. It does not exist in Jersey; it does not exist in many large regions of this country, nor in thousands of herds in infected districts.

With the above in view, and bearing in mind conditions that are evident and need not be specifically mentioned, my proposal is as follows:

1. Let certain persons be licensed to purchase and maintain tuberculous cows and to sell such cows to persons equally licensed.

2. Let licenses for the above purpose be granted, by a board, to persons who have the intelligence, integrity, and facilities for conducting the business safely.

3. Let such licenses be free, and granted subject to certain stipulated conditions necessary to the safe conduct of the business, and subject to withdrawal when it shall be evident that these conditions are not strictly observed.

4. As part of the necessary conditions the following are suggested:

a. A full report on tuberculous animals purchased, sold, and on hand shall be made to a board at regular stated times by each licensee.

b. Tuberculous cattle shall be kept only on farms and in buildings reserved for their exclusive use.

c. The milk shall be Pasteurized in a way that shall be prescribed by a board or that shall be satisfactory to the expert appointed by a board.

d. Calves shall be removed from their dams within three days after birth, and also from the building in which tuberculous cows are kept. They shall be removed to another farm as soon as they are tested with tuberculin and are found to be healthy.

5. After adequate heating, the sale of the milk for use as food or for manufacture shall be permitted.

6. All cows going into the possession of licensees under these regulations shall be branded, tattooed, or ear-marked in some characteristic and ineffaceable way.

7. Cows so kept may be disposed of for slaughter at slaughter-houses under approved inspection when notice of intention to send

for slaughter is given to the meat-inspector in charge and is acknowledged by him.

8. The cows held by licensees shall be inspected physically from time to time, and all advanced and udder cases shall be destroyed, upon the payment of moderate indemnity from the public funds.

The purpose of this whole plan is to enable herd owners to dispose of tuberculous cows at the least possible loss; in other words, to obtain for them their full value. The effect of this would be to stimulate herd owners to have their herds tested, and thus eradicate disease. At present this cannot be done without great loss. No State pays for tuberculous cows as much, on the average, as they are worth as judged by their real earning power, and no State is prepared to buy all tuberculous cows at any price.

If licenses were freely granted to all individuals applying who could meet the necessary requirements, there would be enough purchasers to ensure competition among the buyers of reacting cows, and they would bring their real market value as based on their probable earning power.

As to the use that could be made of these cows, creameries or cheese factories supplying the general trade could well afford to purchase the milk they would produce. Such milk could, after adequate heating, be certified as wholesome by a proper public officer, and there would be no valid ground for refusing to accept it, or such milk could be manufactured on the farm. In addition, some of these cows have high value for breeding, and their progeny could be reared advantageously.[1]

The most obvious apparent objection to this plan, and the one most likely to be urged by persons who are not familiar with this subject, is that it would be wrong to encourage the use and sale of diseased milk. This must be granted; but the objection shows a misconception of the plan. In the first place, nothing is added to the volume of milk from diseased cows that is now being produced. Instead of favoring the surreptitious sale of milk from diseased cows, as is now done, and entirely in the guise of milk from healthy cows, probably and possibly dangerous cows would be gathered together, and their milk would be rendered wholesome before it could be sold or used. In the second place, the number of tuberculous cows would be constantly reduced, and the wholesomeness of the general milk-supply would thus be improved. To insist on this objection is most irrational so long as milk from tuberculous cows is everywhere sold without the least restrictions.

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[1] The writer was recently consulted in the case of a very valuable herd of dairy cattle that had been entirely free from tuberculosis for several years. It happened that one or more tuberculous cows were added to this herd. Upon the next test eleven cows reacted. These were very valuable animals; all were in good condition and were highly bred; some were imported. The owner was advised to keep these cows as a separate herd. He found that he could not do so profitably, and all were killed. Only recent local lesions of slight extent were found in nine of the cows; the other two had older lesions. None of these cows could have been retained with safety in the herd: but all of them could have produced healthy calves, and some of them would probably have stood use as dairy cows for years.

Instead of encouraging the permeation of the entire cattle industry with this scourge and the contamination of all lines of the cattle trade, the infection would be directed through certain guarded channels into definite receptacles, from which it could not escape and wherein it would gradually be eradicated.

In short, the plan is to encourage the removal of tuberculous cattle from herds by paying to their owners all they are actually worth, and more than States are willing or can afford to pay; to concentrate tuberculous cattle in certain definite herds, where they can be watched and guarded closely; to so treat the products of tuberculous cattle that they can do no harm, and to thus gradually corner and eradicate the disease.

PRESIDENT'S ADDRESS, ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.[1]

ANOTHER year has passed since last we met together at the annual meeting of this Association. The past, like all other years, has brought joy to some and sorrow to others. It is only a few weeks since our great nation was called to mourn the loss of its chief Executive—a man greatly beloved by all except by the Anarchists. Surrounded by his fellow-citizens, vieing with each other to show him honor, he was laid low by the assassin's bullet, and the name of William McKinley was added to the list of martyred Presidents; and while we bow in humble submission to the will of the Almighty, and mourn the loss of one so grand and noble, let us not forget to render thanks to Him who doeth all things well.

We have just reasons to be thankful when we remember that during the past year none of our members has been called from time to eternity, and our ranks remain unbroken.

I wish to acknowledge my indebtedness to our worthy Secretary for the able support he has given me during the past year. I can assure you that had it not been for his untiring efforts—his planning, pleading, and begging—the programme of this meeting would not present such an array of well-known names, which is a guarantee that we will receive papers of interest to all.

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[1] Presented at the annual meeting by Dr. I. J. Gunning, President, November, 1901.

The office of Secretary should be filled by the best man in the Association, and I can assure you that there was no mistake made when Dr. Welch was chosen our Secretary; but, like some political parties, the mistake was made at the head of the ticket, and I trust that you will profit by the present experience, and do better in the future in selecting a man to act as our President.

During the past year there has been no serious outbreak of contagious or infectious diseases in the State, so far as I have been informed, unless it be influenza, which has been quite prevalent, but of a mild form, the death-rate being quite small, most of the deaths occurring in neglected cases. Where there has been an outbreak of disease it has been confined to a small section of the State. Some of these local outbreaks have not been reported, many of the stockmen of the State having lost all confidence in the work done by the State the past four years, and will not consent to State interference if they can prevent it.

The past year has been one of prosperity for the veterinarian as well as the stockmen of the State. The advanced price of live-stock has made owners of stock more interested in caring for their sick animals, and, money being quite plentiful, the doctor has received more cash for his work and fewer accounts to charge and collect in the future.

The prosperity enjoyed by the profession during the past two years will undoubtedly cause many of the young men to start in the work of educating themselves for the profession, notwithstanding the fact that the Governors of this State persist in refusing to recognize the graduate veterinarian. Our colleges will receive more or less benefit from the present prosperity by a larger number of students, and the colleges offering the most complete course of study and receiving the most public recognition will without doubt receive the largest number of students. Our colleges should be the standard-bearers of the profession, and should at all times refuse to recognize any man or class of men who, by word or deed, strive to cast any reflection on the colleges of their graduates. The work of our colleges and the persistent work of scientific men in the past few years have elevated the scientific knowledge of the profession to a place worthy of the highest recognition of every American citizen.

As President of this Association I feel that there is a duty resting on me—a duty that I would gladly shun if by so doing I would feel that I was doing my duty to our profession. The duty that I refer to is the standing of our profession in this State, and I can assure you that if I did not feel it my duty to make a few remarks along this line I would gladly pass it by; and I can assure you that what I have to say I say with true brotherly love and due respect for all.

I trust that the time is not far distant when every graduate in this State will be bound together in our great professional brotherhood, thinking not of self alone, but the good of all. The profession in this State at the present time reminds me very much of a house divided against itself. What the outcome of this division will be it is not for me to say, but I trust that the divided parts may again be bound together for the good of all.

Something over four years ago the Governor of this State appointed to the office of State veterinarian a gentleman who was a non-graduate—a gentleman who, only a short time before his appointment, took occasion in my presence to denounce the veterinary colleges of this country as unworthy of recognition; and I took it for granted that he did not hold graduates in any higher esteem than the colleges from which they were graduated. Only a short time after this appointment he was in Chicago, knocking at the doors of the veterinary colleges, asking them to recognize him; and I have been informed that there was one of the veterinary colleges which gave him the recognition he desired, and which, I have no doubt, he so much needed, while the other college was perfectly willing to recognize him as an honorable gentleman, but not as a professional man, and by so doing placed a wreath around it which neither the scorching sun of summer nor the chilling blasts of winter will be able to wither.

At the time of this appointment it was freely admitted by State officials at Springfield that if the graduated veterinarians of this State refused to do State work under this appointment the State work could not be carried on; but if enough graduates could be found who would condescend to do State work it would make but little difference who held the office of State veterinarian. Notwithstanding the fact that a large number of graduates refused to do State work, there were plenty who seemed not only willing, but anxious, to have an appointment to do State work. The veterinary profession was in no way to blame for the first appointment of a non-graduate, the blame resting with a few of the political wire-pullers of the Republican party; but for the second appointment the graduates who made it possible for a non-graduate to hold the office are alone responsible, for by their work they have made it possible for any man to hold the office that a few wire-pullers may see fit to name.

During the past winter quite a number of graduates came out as candidates for the office of State veterinarian—men who would have been an honor to the office and to the profession—and, after obtaining indorsements of which they might feel justly proud, were each and all passed by without the least recognition. Some of these men had been serving the State for nearly four years, and after four years of work succeeded in doing just what they had been working for—their own defeat; and I can assure you I regret their defeat perhaps more than they do. It seems to me that if those men had been just a little better posted on politics there would have been very few candidates in the field, for it was a foregone conclusion at the time the present Governor received the nomination that if elected no graduate would be appointed.

There was never any doubt as to where the Democratic party or the candidates stood in regard to the appointment of a State veterinarian; but, strange as it may seem, out of the four candidates of the Republican party there was only one who dared to say one word as to where he stood on the appointment of State veterinarian; and I take pleasure in saying that the one Republican candidate who spoke with no uncertain sound for our schools and for the veterinary graduates of medicine and surgery was Hon. Judge Carter, of Chicago; and I wish to say to you that if this meeting adjourns without giving a vote of thanks to the defeated Democratic nominee and to Judge Carter it will adjourn without showing due respect for the men who were ready and willing to give just recognition to the graduates of this State.

It would be gross injustice to the present State veterinarian to say, as some have said, that he had no right to accept this office. He had the same right and privilege as any other citizen of this State; and just as long as he can find men who are willing to kneel at his footstool he is likely to hold his present office, and I shall be the last to criticise him for so doing.

Let me ask you how long you think the State work could be carried on if every graduate who is now doing State work would refuse to work, and all other graduates do likewise. Let me say to you that it would not be forty-eight hours until there would be a few men at Springfield hunting for the point of the compass to find out "where they were at;" and during that forty-eight hours the profession would rise to a place of honor and recognition such as it never has known in the State.

In the course of my remarks I may have said some things that would ruffle the feathers of some brother practitioner, but I believe that friendly criticism will often do more good than ordinary silence. I wish to say to you to-day that just as long as the graduates of this State are willing to submit to the dictates of political wire-pullers our colleges and our profession will never receive just recognition.

The live-stock interests of this State are ready and willing to do us justice and lend friendly assistance at any time, but we must first show that we stand united, and are making a strong pull and a pull altogether for the good of each and all.

I hope that the day is not far distant when every graduate in this State will stand under one banner and take as their watchword:

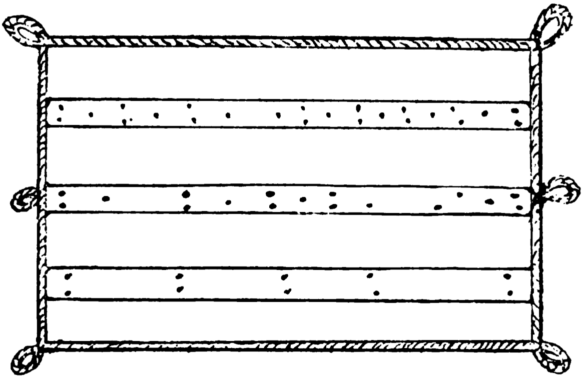
"We live for those who love us,
For those who know us true;
For the wrongs that need resistance,
For the rights that need assistance,
For the future in the distance,
And good that we can do."

A CONTRIVANCE FOR THE READY HANDLING OF DISABLED HORSES.

By Frederick Griffith,
NEW YORK CITY,
FELLOW OF THE NEW YORK ACADEMY OF MEDICINE.

Until automotive power becomes universally adopted as a means of propulsion, any appliance which will further the welfare of the horse is worthy of notice.

Having witnessed in a large city's traffic, many times, the struggles of a horse to regain his feet, sometimes totally ineffectual, save as to numberless sprains and bruises received in efforts to rise upon icy asphalt streets; also during summer's heated term, when this faithful toiler falls in the shafts from heat-stroke, the writer has to suggest a contrivance for the ready handling of the disabled animal. A strong canvas blanket is to be constructed of heavy duck cloth, cut to the size of the ordinary blanket cover; bound around with manila-rope, as is the fashion in sail making, at the four corners, and midway in the ends are to be worked eyelets or loops of rope fitted with metal thimbles for durability, for the attachment of rope, the reins, or trace chains, when in use for a disabled horse.



To strengthen the canvas where the several cloths are joined, bands six inches wide, made of trebled canvas, are to be riveted to the blanket.

So constructed the blanket, when not put to its humane use, will readily find place on a truck or wagon as a tarpaulin.

TROUBLE ON THE FARM.

BY HOLMAN F. DAY.

(Copyright, Walter B. Guild, 1901.)

Just as soon as things are splendid an' I'm gittin' some ahead,
An' the crops are lookin' scrumptious an' the stock is all well-fed,
When I've got it nicely figured what the profits ought to be,
Then all to once disaster comes a-swoopin' down on me.
Fightin' 'tater-bugs an' squash-bugs, beetles, worms an' like o' that
Has swamped me pretty often an' has mowed the profits flat,
But I've never done much kickin', for we farmers, don't ye know,
Have allus made allowance for a sartin dose of woe.
For it's fair an' open warfare on the beetles, bugs an' sich,
Ye can give the critters tophet with your pizen, punk an' pitch;
Ye can smash 'em when ye find 'em; but the things that wallops me
Are the pesky new contraptions that ye never, never see.

I owned a pair of hosses, sixteen hands an' strong's a beam—
There wa'n't in all our section sich a hefty, spiffy team—
They were mighty good in haulin', they were spry upon the road,
An' there wa'n't an out about 'em, insofar as what I knowed.
But all to once, by thunder, came a vet'rinary cuss,
An' he looked them hosses over an' he up an' made a fuss.
He had a little spy-glass an' he squinted with one eye,
An' he said they had the glarnders, 'cause he found tobackilli.
So he promptly up an' shot 'em, an' I never got no pay;—
I'm a pretty patient critter, as my neighbors all will say,
But that action made me ugly, for the things that worry me
Are these pesky new contraptions that ye never, never see.

I owned some harnsome Sussex shotes, so fat they couldn't squeal,
I fed 'em corn an' middlin's an' I topped 'em off on meal;
They was sure three-hundred pounders—would have brought a fancy price—
An' I bragged a lot about 'em; they was sartin extry nice.
Wal, at last I had 'em butchered, an' I took 'em down to sell,
But, by Judas, them inspectors came around to peek an' smell,
An' they said I mustn't sell 'em—I must bury 'em, because
They were full o' tritchernoses! 'S if I knowed what them things was!
I can fight these bugs an' beetles, but may tophet swaller me
If I'm good for new contraptions that ye never, never see.

Wal, I had a herd of Jerseys—sleek an' fat an' all o' that—
Owned a milk route to the city an' was clearin' quite a slat;
Milk was thick an' nice an' yaller, an' I sold it ev'ry drop.
One day, though, a blamed inspector climbed aboard an' made me stop.
Took his dinky little spy-glass an' he peeked an' peeked a while,
An' he curled his lip an' snorted an' says he, "That milk is vile!"
Then says I, as mad as thunder, "What's the matter, if ye please?"
"There is tookerboobles in it, an'," says he, "they're thicker'n fleas!"
Do ye wonder, friends an' neighbors, that my Ichabod was stirred?
But it didn't make no diff'rence, for they come an' killed my herd.
Blame the luck! Gol swat their notions! Won't they ever let me be—
Findin' out these new contraptions that ye never, never see?

DEPARTMENT OF SURGERY.

By W. E. A. Wyman, M.D.V., V.S.,
MILWAUKEE, WIS.

Hoof Diseases.

(Continued from page 426, July, 1901.)

Bruised, incised, punctured, etc., wounds of the pododerm, as the result of forging, nail-pricks, cracked hoof-calks, are the most common point of entrance of the pus-producing germs. Probably the most frequent cause is the senseless deep paring of so-called corns. Since in both serous and hemorrhagic pododermatitis a ready medium for the development of bacteria is offered, it is readily seen that just such cases presenting a bruised state of the pododerm are especially liable to be infected. Finally, as a matter of contiguity, infection of neighboring parts follows suppurative processes, as suppurative dermatitis, quittors, etc. For reasons previously discussed, the hoof of the anterior extremities—and here, again, the internal aspect—are more frequently exposed to the injuries just enumerated, and thus more frequently attacked by suppurative pododermatitis. Another reason for the accumulation of pus—at least concerning injuries of the fleshy wall, sole, and frog—lies in the fact that the wound closes early by the inhibition and consequent swelling of the horn cells by the liquid products of the inflammation.

The temperature, the moisture, and the presence of a rich blood-supply represent an ideal medium for the development of bacteria and their toxins in the hoof. They multiply rapidly and invade the surrounding parts. Their metabolistic products first create a hyperæmic state, followed by serous exudation and infiltration of white and red blood cells into the tissues ; pus-producing bacteria enter in some way or other, and a purulent exudate occurs. In superficial suppurative pododermatitis the purulent exudate permeates the surface of the sensitive laminæ, and here, in the stratum mucosum, the pus separates the cells of the rete Malpighii, thus eventually disconnecting the fleshy and horny laminæ; pressure is then brought to bear upon these parts, and anæmia follows. By the application of operative measures the pus can be liberated, as it now rests between the horny capsule and the papillary body.

When not relieved the process destroys more and more cells of the stratum mucosum; therefore in the region of the sensitive laminæ of the wall the pus eventually appears at the coronet. In the region of the fleshy sole the white line forms the point of exit, while the product of superficial suppurative pododermatitis of the fleshy frog may empty along the coronary region of the heel.

The pus of superficial suppurative pododermatitis consists of pus corpuscles, pus germs, and serous exudate; therefore it is thin and, on account of the admixture of the pigmented rete cells, gray or black. It is usually limited in quantity, at first of alkaline reaction and odorless, while the presence of putrefactive bacteria will develop a decided malodor.

Superficial suppurative pododermatitis, unlike an aseptic pododermatitis, more rarely terminates in resolution, while chronic inflammation, deep suppurative, and even gangrenous pododermatitis are possibilities. In simple resolution resorption of the products of inflammation occurs, provided no pus has as yet accumulated; in other words, resolution is only possible in case of purulent infiltration of the tissues. Accumulation of pus is to be expected. At first the pressure exerted by the pus upon the papillary body renders the same anæmic. As soon as the pus is evacuated, and the pressure thus removed from the papillary body, a congestive hyperæmia follows, which in return means an active cell proliferation in the rete Malpighii. These newly formed cells, so to speak, cap the sensitive villi, and as new cells form the first-formed cells are moved toward the wall or sole, as the case may be, reaching the sole or wall in time and destroying any effect, provided the amount of tissue destroyed by the inflammatory process was limited; otherwise, cavities of variable size, filled with a smeary black mass, are the result.

In those cases with active destruction of tissue by the purulent process, involving a greater portion of the papillary body, with retention of pus, cell proliferation, so essential to restore an equilibrium—that is, granulations—is continually wiped out, and depending on the site of the purulent process—for instance, the sensitive wall laminæ—and a tubular ulcer or fistula is the consequence.

Deep suppurative pododermatitis, as a sequel to the superficial form, is not often seen, and is most likely to follow retention of pus.

Gangrenous pododermatitis of a superficial type is also rare, and, when met with, arises usually independently as the result of traumatism. More or less suppurating leg lameness, quite often setting in suddenly, is the first symptom. The writer had many cases of superficial suppurative pododermatitis where this pododermatitis undoubtedly existed longer than the lameness, as the amount of pus found on opening the hoof was entirely out of proportion to the date of lameness. As in all suppurating leg lameness arising in the hoof, going down hill, continuous exercise, and work on hard ground increase lameness. In those cases where the pododerm about the heels is diseased the animal exhibits volar flexion of the phalanges—that is, it knuckles over—while a peculiar snatchy motion is observed when the pododerm about the toe region of the hind hoof is involved.

In the standing posture pain causes the creature to shift the hoof from one spot to another, and, as just stated, it will show volar flexion of the lower phalanges when the pododerm about the heel is diseased. The general health of the animal is seldom upset; very nervous horses at times appear somewhat depressed.

Palpation with the hand exhibits abnormal heat, while a circumscribed, very painful spot is shown by the hammer or pincers. Œdema of the subcutaneous tissues of the lower phalangeal region, depending upon a distributed circulation and that condition *sine qua non*—namely, a strongly beating phalangeal pulse—represents the *quod erat demonstrandum.* In those cases where the purulent exudate is still within the horny capsule—that is, has not yet burrowed itself into the outer world—one finds a circumscribed brown or black horny area, best seen along the white line, sole, inflection of the bars, especially in the white hoof. As soon as the paring knife permits its escape, a thin, blackish hoof pus appears. Of course, in those cases where the pododerm about the coronary region is undergoing the purulent process, simple inspection of the parts suffices to make the diagnosis. The same holds true when the pus escapes through solutions of continuity, as cracked hoof, nail-pricks, etc.

The diagnosis of superficial purulent pododermatitis therefore rests upon the above ensemble. The thinness and gray color of the hoof pus is also characteristic of the superficial type of purulent pododermatitis. The differential diagnosis takes into consideration corns and the two forms of aseptic pododermatitis, viz., the serous and the hemorrhagic one. Corns *per se* are not productive of lameness; the red spots are circumscribed. In serous pododermatitis the discolored horn is yellow, while a radiating red discoloration is peculiar to hemorrhagic pododermatitis. (See chapters on Corns, Serous and Hemorrhagic Pododermatitis.)

From an economic stand-point the chances for a recovery are important. In making the prognosis the extent, intensity, and the seat of the affection, its duration previous to the moment of examination, and the type of hoof (wide, drop sole, etc.), as well as the indirect causes (nail-pricks, cracked hoof, calking) are of special interest. To be sure, resolution is fortunately the more frequent termination, and thus a favorable diagnosis is warranted; yet the possibilities of a deep pododermatitis and necrosis, with subsequent septicæmia or pyæmia, must not be lost sight of. The presence of a chronic inflammation—that is, ulceration or a fistula—call for an unfavorable diagnosis.

THE POINTS OF A DRAUGHT-HORSE.

HAVE the head of a fair size. Do not buy a horse with a pony head. A wide forehead is a good indication in a colt, the poll being not so wide, as the ears tend to droop, such horse often being stubborn in disposition. The eye should be prominent and the throat-latch clean, with a well-muscled neck. The shoulders should be somewhat sloping. Upright shoulders tend to make the gait stilted.

While good width in front is necessary, the legs should not be placed to the outside of the body. Such horses lack the straight-away gait and tend to roll. The knees should be broad and the tendons at the back of the legs well defined. The pasterns should be lengthy and set well back; the foot large, tough, with no bones.

At the heart girth the horse should be deep and full, with a short back and broad loin. The quarters should be long and level, with heavily muscled thighs. Especially important are the hocks, which should be clean, broad, and free from fleshiness, close together. No good draught-horse goes wide at his hocks. A colt going wide will tend to go wider with age, and consequently loses propelling power. The limb from heel to fetlock should be perpendicular—no curby hocks.

The skin should be clean and the hair fine of the model draught-horse, who must not paddle, turn the toes either in or out, and should show the sole of the foot at each step.—*Agricultural Journal,* October 24, 1901.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF M. P. RAVENEL, M.D., AND S. J. J. HARGER, V.M.D., OF PHILADELPHIA, PA.

TUBERCULOSIS IN THE HORSE. Markees asserts, with Nocard, that in the abdominal form of tuberculosis polyuria is a diagnostic symptom of the first order; also that this form of the disease is of avian origin.—*Bull. Vét.*

BENZINE AS AN ANTHELMINTIC. Graal recommends, instead of the usual anthelmintics, benzine in doses of 10 to 30 grammes. —*Ibid.*

RAW MILK IN MARASMUS AND INTESTINAL CATARRH OF THE NEWBORN. Boiled or sterilized milk undergoes during this process certain alterations : the casein becomes uncoagulable, the nuclein and lecithin insoluble, the lactose modified, and the fat collects in droplets upon the surface. Jensen and von Starck have observed young calves fed upon boiled milk to emaciate and die. Rhachitism is attributed to it by Heubner. Monrad has noticed that in marasmus (athrepsia) and intestinal catarrh of the newborn Pasteurized milk is not assimilated. The danger from crude milk consists in tuberculosis and the coli bacillus. The former can be prevented by proper sanitary laws and the latter by cleanliness on the dairy farm. Monrad does not advise the suppression of sterilized milk, but opposes its use in marasmus and intestinal catarrh.—*Bull. Vét.*

DERMOID CYST OF THE GREAT OMENTUM. Petit, of Alfort, found a dermoid cyst in the great omentum of a horse that had died from tetanus. The tumor, which was flat and discoid in shape, measured 50 cm. in diameter. It was hollowed by several cavities as large as a walnut, which contained a thick, mortar-like substance containing hairs 20 to 30 cm. long and agglutinated by sebum.—*Rev. Vét.*

TUBERCULOSIS OF THE HUMERUS. Cadeac and Morot found in the lungs and lymphatic glands the lesions of tuberculosis of the upper end of the humerus. The latter was enlarged to three times its normal size, and on section showed numerous cavities filled with the tuberculous matter.—*Rev. Vét.*

TRANSMISSION OF WARTS FROM THE HEIFER TO MAN. Bédel, in removing several warts from the udder of a heifer, accidentally cut his left index finger. About three or four months afterward three papillomas as large as a grain of wheat developed at this point. With Dr. Majocchi, who gave a similar instance, he incriminates contagion. Bédel also observed a papillomatous tumor, as large as a hazel-nut, in the inferior lips of a foal at birth; the dam carried numerous warts on the lips and nostrils. Bédel therefore believes that warts are congenital and hereditary.—*Rev. Vét.*

SUTURING AND RESECTION OF THE TRACHEA. Mesnard made such experiments upon the dog. Two, three, and five rings were removed in different dogs, and the two ends of the trachea drawn together and sutured with catgut. In ten days the cicatrization was complete; the animals retained their normal state. Mesnard also resected six rings from the trachea of one dog and transplanted them into that of another dog, and *vice versa.* The result was complete.

The author suggests the application of these operations in the larger animals, especially the horse, in which there may be limited narrowing or obstruction of this tube from diverse causes.—*Rev. Vét.*

PIROPLASMA CANINA—TICK DISEASE IN THE DOG. Almy has observed at Alfort five new cases of piroplasma canina or tick disease, which seems to affect principally hunting dogs. In all cases the skin was covered with ticks, and the red blood cells contained the *piroplasma bigeminum.* The principal symptoms were stupidness, inappetence, fever (sometimes 40° C.), hæmoglobinuria; in some cases an icteric tint of the mucosa and skin; red blood cells were always diminished—in one case 1,260,000 per c.c. Three out of five animals died; those surviving were anæmic for a long time. Subcutaneous injections of hydrobromate of quinine were not very successful.

Leblanc thinks that the tick theory is exaggerated, and associates the disease with the African disease tristeza.

Nocard observed ticks in all cases, but the presence of ticks is not always positive of the disease, because some species of ixodes are non-pathogenic.

A dog may become immune through the repeated bites of a small number of ticks. Experiment has shown that the injection of a small quantity of infected blood into a healthy dog makes him immune to a large dose of such blood ordinarily fatal when injected alone.—*Rev. Vét.*

THERAPEUTIC REVIEW. *Œdema.* Against œdema and tumors of the members consecutive to traumatism Colin employs a mixture of carbonate of calcium, 100; sulphate of iron, 30 ; and acetic acid, 9.5 parts. For subcutaneous œdema and hydropsy of cavities Janzon employs potassium iodide.

Mange. Müller and Regenbogen conclude that *epicarin* has no more merit than other remedies used for *sarcoptic mange in the dog.* Frick, Brandi, and Gmeiner, who recommend epicarin, also employed with success saponified cresyl. The following liniment is recommended : Cresolinated water (cresol-water 9), 500; potash soap, 250; alcohol, 250 parts, applied with strong friction every two days Five applications suffice.

Against *demodectic mange* in the dog Poth shaves the epidermis before applying the remedy (previously reported). Paust has cured two cases as follows : Thorough washing with soap and hot water, morning and evening, and then with a solution of creolin ; then wash for several minutes with a strong decoction of tobacco, dry the skin, and apply the following ointment : Sulph. sublim., 1; zinc. sulph., 1; axony, 9 parts.

Lemke gives preference to an alcoholic solution of corrosive sublimate, 0.5 to 1.25 per cent. The sublimate may also be incorporated in vaseline. In thin-skinned dogs 0.5 per cent. suffices. He also suggests iodine, chloroform, and oil of turpentine, 1 part each, in liquid vaseline, 2 parts. Vogg advises the following : Ointment of zymoidine of Rosenberg, 10 ; purified lanolin, 60; yellow vaseline, 10 parts. The hair is cut off, the skin washed with soap and warm water, and three weekly applications made. Wagenaar washes the mangy spots with pure creolin until the skin is inflamed, which is then washed twice daily with an 8 per cent. solution of creolin.

Mathis has treated *mange in the sheep* with essence of lavender or essence of turpentine.

Mange in the horse is treated with a liniment composed of lysol, tar, soap, and alcohol. On the extremities the following formulæ can be used : Lysol, 5 per cent. in water; benzine mixed in three times its weight of linseed oil ; naphthalin ointment.

Imminger prescribes the following: Sublimed sulphur, 50 g.; mercurial ointment, 50 g.; powdered cantharides, 20 g.; these are carefully mixed and added to 400 g. of vaseline. This is applied to the diseased parts, which in two days are washed with soap and warm water.

Trichorrhexis (*falling out of the hair*). Kutzner and Reichert had good results in trichorrhexis of the tail in the horse with a 1 per cent. solution of pyoctanin blue (yellow in sorrel horses). The tail is first washed with a 3 per cent. alkaline solution. Goldbeck recommends daily washing with a 5 per cent. solution of pyrogallol.—*Rev. Vét.*

CHROMIC ACID IN APHTHOUS FEVER. Carani treated a large number of cases of aphthous fever with a concentrated solution of chromic acid, 30 per cent. Two applications daily for two days suffice to complete the cicatrization of the ulcers of the interdigital space.—*Bull. Vét.*

JABOT OF THE JUGULAR VEIN IN THE HORSE. The case presented to Garibaldi had for several days been unable to drink. Food and water were ejected through the nostrils, and what was swallowed was arrested at the superior third of the neck along the course of the jugular vein, forming a fusiform swelling 12 cm. long and 6 cm. wide. Dilatation of the œsophagus was eliminated : (1) When the jugular was compressed below the tumor returned; (2) puncture of the swelling with a Provaz needle showed it to contain blood.

The treatment consisted in dissecting the dilated jugular and ligation above and below the dilatation. In two days the animal was able to swallow.—*Bull. Vét.*

GERMAN.

THE USE OF ASSES' MILK FOR INFANTS. In the *Munich mediz. Wochenschrift*, No. 45, 1901, a report is given of a lecture on the above subject by Dr. R. Klemm. It was claimed that asses' milk is more free from microbes and toxins than cows' milk, and that it is more nourishing, digestible, and palatable than cows' milk. It is to be preferred both for sick and for well children. One farm supplied 9500 marks' worth of this food during 1900, and it was prescribed by sixty physicians.

GLANDERS IN ALSACE. There has been so much glanders in Alsace that a police order has been issued to the following effect: Shippers bringing horses into the province are required to advise the police by telegraph where and when the horses will be first stabled. The horses are examined by the district veterinarian and are placed under quarantine. During this quarantine the horses may be worked, but if they are sent to another location or are sold the police must be notified. Every three weeks the horses are re-examined, and reports are made to the bureau of police. At the end of three months, if the horses are healthy, the quarantine is discharged. The cost of these inspections is placed on the owner. —*Deutsch. med. Wochenschrift*, January 4, 1902.

GERMAN MEAT-INSPECTION IN CHINA. In the *Med. Wochenschrift*, No. 45, 1901, the following information is given from the letter of a German veterinarian in China. Of 287 Chinese swine 32 had distomata in the liver, 22 had trichinosis, 3 had erysipelas (rothlauf), 1 had echinococci, and 9 had cysticercus cellulose; 110 goats and sheep were sound; of 34 Chinese cattle 3 had cysticercus inermis, 1 a pulmonary abscess, 1 tuberculosis; of 18 calves 2 had pneumonia. Among fowls many were found with a unilateral inflammation of the eye, in which the eyeball broke down into a yellow, sticky mass. It was found that this product contained the chicken cholera bacillus in pure culture. Engel has strongly recommended the use of balsam of Peru mixed with an equal quantity of alcohol as an injection in cartilaginous quittor.

BEHRING'S RECENT ANNOUNCEMENT IN REGARD TO TUBERCULOSIS OF CATTLE. Professor Behring, the discoverer of diphtheria antitoxin, has been awarded the Nobel prize for making the most important recent contribution to knowledge in the field of medicine. Upon the occasion of the awarding of the prize ($12,000), in the Academy of Science in Stockholm, Professor Behring announced some of the more recent results of his investigations in regard to tuberculosis. Behring has been experimenting with cattle in the production of immunity to tuberculosis by inoculating them with a non-virulent culture of tubercle bacilli. He holds that when this is done an immunity is acquired that will enable the animal to resist virulent tubercle bacilli. As a parallel he calls attention to the protective effects of anthrax vaccine, wherein a weakened culture is inoculated into an animal to enable it later to resist a virulent culture. He announced his intention to use the prize fund to pay for further experiments along this line, and expressed a strong hope that a method of immunizing cattle against tuberculosis on a practical scale would eventually be found. He also said that he had found human tuberculosis virulent for cattle, and believed both to be minor variations of the same disease.

It is to be hoped that this expectation will be realized. The State Live-stock Sanitary Board of Pennsylvania has also been working on this problem for many months, and, perhaps, is approaching the same result.

REPORTS OF CASES.

AN ENZOÖTIC ATTACK OF CHOREA AMONG CATTLE.[1]

By A. D. Knowles, V.S.,
NEVADA, MO.

About September 20, 1900, I was on the farm of a Mr. Arnold, vaccinating some cattle, and my attention was called to a grade-polled Angus heifer about a year and a half old; she stood among a bunch of cattle on the opposite side of the lot, with her head turned toward us; the head was moving from side to side and in a rotary motion; the eyes staring; the front feet extended, as if to prevent falling forward; the hind legs also placed in a bracing position, and the animal was very nervous.

When I approached her she started excitedly, stepping high, the front feet almost touching her ears, and after going a few steps she fell on her side in a state of eclampsia. I approached and found her trembling, with eyes rolled back; respiration and pulse very rapid. I did not take her temperature at that time, but found on later examinations that the temperature was elevated from one to three degrees. After leaving her for a few minutes, she arose and passed along the opposite side of the lot with the same unsteady gait, frequently falling forward.

I was informed by Mr. Arnold that he had had cattle affected like her for four previous years, that it usually made its appearance in October and lasted several weeks; and that he had never lost any showing the symptoms; and said he had had the services of veterinarians before, but that they had failed to successfully treat the affection.

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[1] Read before the Tenth Annual Meeting of the Missouri Veterinary Medical Association, October 22 and 23, 1901.

I was on this farm several times during the autumn and winter, and saw about seventy-five head of his herd of two hundred and fifty cattle show the symptoms just described; the affected cattle would continue to eat and thrive, but would frequently fall, while suffering from the spasms, into ditch and creek, and be unable to arise until helped.

The only one which Mr. Arnold has lost while showing the symptoms was a steer about a year old, which had fallen into a ditch on the night of January 3, 1901; everything indicated that the animal chilled to death while lying in the ditch on his back.

I held an autopsy about thirty-six hours after death, and found the following conditions present: The body showed no signs of decomposition and there was no tympanitis, the post-mortem was held by the field operation, exposing all of the internal viscera as a whole, after which the contents of the intestines, stomach, and bladder were exposed; then we examined carefully the external and internal conditions of the heart, lungs, liver, kidneys, and spleen. There was nothing to indicate disease or abnormality until the cranial cavity was reached. Upon opening that cavity the dura mater and arachnoid showed nothing characteristic, but there seemed to be much more than the normal quantity of the subarachnoid fluid, and the vessels of the pia mater were greatly distended with blood; there was nothing else to attract especial attention.

There were a greater number of cattle affected on this farm last year than there had been any previous year. The owner has had sheep which, he says, have showed the same symptoms, and he thinks some have died from the affection. The farm referred to lies in the northern part of Vernon County, Missouri, and is composed of about eight hundred acres of black lime-stone soil; it is all set in timothy, clover, and English blue grass. The farm is exceptionally clear of weeds and brush except forty acres, of which I shall speak later; a creek runs through the farm from south to north, but the cattle receive water mostly from tanks fed by large ponds, and the water-supply in the tanks is regulated by floating valves; the ponds are all fenced in so that no stock can get to them. The pasture was excellent, and the cattle did not receive any grain or hay until after January 1st, except two carloads of two-year old steers, which were being fed for the market; but those receiving no grain remained in splendid condition.

The forty acres referred to is fenced to itself and is not used during the summer, but is allowed to grow up in brush and weeds, and is used as a wind-break in winter. On one occasion about seventy-five head of cows and young cattle got into this enclosure, and within three days about twenty head were showing the symptoms; some were not able to stand for a few days, and others had to be pulled from ditches or creeks occasionally. During the time these cattle were so badly affected they continued to eat and digest their food. The cattle were removed from that pasture, and some of the affected ones improved rapidly, while others continued in about the same condition for several months.

On March 22, 1901, I accompanied our State veterinarian to this farm. There were several cattle still affected, and as thorough an investigation as could be made in one day was made by Dr. Luckey. Plans were laid to gain more knowledge of the affection; but as the grass came on the cattle gradually grew better, until by May 1st there was not an animal showing any perceptible symptoms.

The grade-polled Angus heifer I spoke of as being first affected did not make permanent improvement until spring; but, like all of the others, she showed signs of improvement, to be succeeded by periods of the most aggravated symptoms. After the grass was good in the spring she gradually regained her normal actions, and was shipped to market about the middle of the summer, apparently having made as good a growth as though she had never been affected.

There was no treatment recommended for the cattle, and none was given except that Mr. Arnold, on his own judgment, gave treatment to two cattle similarly affected. One of them, receiving full doses of iodide of potassium, and the other one full doses of the bromide, did not show any change of symptoms. There were other cattle in the same neighborhood affected and showed the same symptoms.

Mr. Arnold has his cattle graded, and keeps each grade in a pasture to itself; and a very noticeable fact is that cattle that were on pasture which was used for meadow—*i. e.*, which was mowed and then pastured after the grass came up sufficiently—did not show any of the above symptoms while they were confined on such pasture, but when moved from that on to land which had been used for pasture the entire season they quickly developed the symptoms.

Cattle of all ages were affected; also some of those on full feed of grain, but those on grain were also on grass.

The symptoms developed earlier in the year 1900 and lasted longer than previous years. Mr. Arnold has had no cattle affected yet this year—October 15th.

I hope this contribution will stimulate a discussion which will give new thoughts and more knowledge on the subject.

POLYHYDRAMNIOS, OR DROPSY OF THE AMNION.

By V. P. Smith, V.S.,
JAMESTOWN, OHIO.

(This subject is one of which I have no literature, and did not hear mentioned at the Ontario Veterinary College, where I was a student in 1891–92, or at the Chicago Veterinary College, from which I graduated in 1895.)

I was called, in April, to treat a case which may be of interest to some other practitioner, and an outline of the same may be of some service. The subject was a mare due to foal in May, which the owner said was getting so heavy that she could hardly walk, and he thought there was something wrong. On this visit I found the mare presenting symptoms of abdominal ascites, with belly very much dropped, and œdematous swelling along the abdomen, thorax, and between the forelegs. Appetite impaired; pulse, 60; temperature, 100. She presented the appearance of a case of ascites, and had I not examined per vaginam I would have diagnosed it as such; but on entering the hand into the vagina I found the cervix dilated and the placental membrane starting to protrude. I wanted to deliver the mare of the colt at once, but the owner objected, saying it was a month too soon, and it might kill her, so I left some medicine to be given that I was sure would do no harm, and told him to report to me if she got much larger, or if she showed signs of labor pains. I heard nothing more from her for two weeks, when he came for me to go and see her again. On my arrival this time I found the mare down; breathing very labored, pulse 90 and weak, temperature subnormal. We helped her to her feet, but it was with difficulty that we kept her up until I could make an examination. She was as full of fluid as her hide would hold; was down until her abdomen was straight from knees to hocks. She did not look like a horse at all. She was all body. On inserting the hand in the vagina I found the cervix obliterated, the amniotic membrane distended and filling the pelvic cavity to its utmost capacity. When I first touched this membrane I thought it was the body of the uterus, but as I could feel no os I soon changed my mind. Finding the membrane too strong to rupture with my hand, I used a knife to make an opening; this allowed the fluid to run out to a level with the floor of the pelvis. When this was done I inserted my hand to see if I could get the colt, and I found it lying so far down that I could just barely touch it with my fingers, and it felt as though it were lying in the bottom of a large hogshead of water, and evidently dead. At this point I allowed the mare to lie down again and the remainder of the fluid to run out, and I feel safe in saying that there was at least forty gallons of it, and probably more. When this had mostly run out I proceeded to deliver the colt, which was easy after removal of the fluid. The mare looked like a collapsed balloon, her sides falling almost together. I used antiseptic and astringent wash in uterus, and gave stimulants, but the mare was unable to rise, and died in about forty-eight hours. I feel sure that if I had taken the colt on my first visit that I could have saved the mare, although she was nineteen or twenty years old; but I would advise all practitioners, when called to see a pregnant animal showing signs of dropsy or ascites, to examine per vaginam, and if they find the cervix dilated and the amniotic membrane protruding, proceed to deliver at once; if you cannot save the colt, you can save the mare. I do not consider it unsafe to deliver a mare of her colt any time after ten months, and I frequently do when I find them carrying the colt overtime and making no preparation for foaling, and always save both mare and colt.

If any reader desires anything further on this subject I would gladly answer all questions, either by letter or through the JOURNAL.

Dr. George R. White, Columbian University, '97, and Dr. Joseph Plaskett, McGill University, '92, have formed a partnership under the firm name of White & Plaskett. They have just completed the erection of the Nashville Veterinary Hospital, which is probably the largest as well as the best equipped veterinary hospital in the South. Dr. White continues to serve as City Veterinarian of Nashville.

Dr. J. Barton, of Washington, D. C., has gone to Pasadena, Cal., where he will continue to practice his profession.

EDITORIALS.

WHERE IN 1902?

MINNESOTA, with her beautiful twin cities of the North, is the last to enter the field for the meeting of the A. V. M. A. in 1902; but, like her able representatives of the profession in all else, she has entered to win, and with vigor and determination that deserve to win she is making a strong plea all along the line to gain this recognition. She has enlisted the officials of the State, the municipal officers of Minneapolis, her Trades League, and a united profession of her own State. Not content with all that this stands for, she is invoking the aid of the profession throughout the West, and, stretching North, she has stirred up her colleagues in Manitoba, and gives fair warning to all the other cities that she is not to be last in the race. Next to Helena, Montana, she offers the greatest attraction as a new field for missionary work, and will equally try in a measure the strength of our growth in live membership. Surely a goodly array of cities—Columbus, Cleveland, Ohio; Chicago, Ill.; St. Louis, Mo.; Kansas City, Mo.; Minneapolis, Minn., and last, but not least, fair Helena, of the Northwest.

EDITORIAL STRABISMUS.

OUR gentle contemporary, the *Country Gentleman*, has published a paragraph which is quoted with apparent approval by the *Jersey Bulletin* (because the *Jersey Bulletin* does not print anything it does not approve unless to get an opportunity to give it a dig), to the effect that a certain Brooklyn physician has inoculated a woman (who presented herself voluntarily for the experiment) with tubercle bacilli from a cow, and has produced tuberculosis in his subject. The *Country Gentleman* inquires: If this experiment terminates fatally, why should not the Brooklyn physician be conducted to the electric chair, there to expiate his crime?

Without attempting an answer to the above question we submit that the following are worthy of consideration, and we refer them, with our compliments, to the *Country Gentleman* and the *Jersey Bulletin*:

If tubercle bacilli from cattle are capable of producing tuberculosis in man, is it any worse to inoculate one voluntary subject in the shoulder than it is to inoculate a large number of involuntary subjects through the digestive tract?

If the experiment cited results fatally, and the suggestion of the *Country Gentleman* as to the treatment of the Brooklyn physician is carried out, what should be done with the editors of agricultural papers who have advised and encouraged the feeding of tubercle-producing germs to children?

A PLAN FOR THE DISPOSAL OF TUBERCULOUS ANIMALS.

WE print in this issue a paper by "Columella," on a proposal of a new plan to combat tuberculosis of cattle conservatively. So far as we know, the proposal is original, and has not heretofore been advanced. The tuberculosis problem has been discussed at great length, but it remains the *bête noir* of the stockman and of the veterinarian. While we may at times tire of the discussion of this subject, it is necessary for us to continue to study and discuss it until a satisfactory solution shall be reached. If veterinarians do not settle this question, who shall?

While we approve of the plan in operation in Pennsylvania, we agree with "Columella" that it is not supported by a sufficient appropriation to cover the whole State adequately; and that if a cheaper method can be discovered—one that will permit more herds to be cleaned up with the present annual appropriation of $40,000—it will do much to hasten the eradication of this destructive disease. Veterinarians interested in the study of this great problem in cattle breeding, economics, and public health are invited to make use of these columns in discussing "Columella's" proposal. We should like to organize a symposium on this theme, in the hope that it may contribute to the solution of this greatest of veterinary problems.

In order that the symposium may be effective it is desired that the writers contributing to it shall adhere closely to the discussion of "Columella's" proposal and not digress.

Now, gentlemen, the tourney is called. Who will enter the lists?

"DECEMBER'S GARNERING."

THE ranks of the profession of the East were severely stricken in December. Baltimore was first deprived of one of her most popular members of the profession, and one endeared to all who knew him—Dr. Thomas F. Barron; Philadelphia will miss in the death of Dr. James Beatty one of the most genial members of the younger generation in the profession; while in the death of the senior editor of this JOURNAL, Dr. Rush Shippen Huidekoper, the profession at home and abroad has lost one of its most valued leaders, and those who knew him one of the most companionable of men, and, in the language of Senator Carter, "a prince of good fellows." Surely our cup of sorrow in the closing days of the old year was filled to overflowing. While gone from our midst, their memories and good deeds will live long after them.

THE family of our late editor, Dr. R. S. Huidekoper, beg leave to express through the JOURNAL columns their deep and sincere appreciation of the many expressions of sympathy and appreciation of our esteemed colleague.

COMMENTS ON THE DEATH OF DR. HUIDEKOPER.

RUSH SHIPPEN HUIDEKOPER.

THIS distinguished veterinarian died of a complication of diseases, hastened by pneumonia, at Philadelphia, on December 17th ult., and the profession of America has thus lost one of its most conspicuous representatives. Few men have entered upon their life-work better equipped for it than our deceased colleague. Possessed of a splendid constitution, a liberal education, great wealth and influence, a natural love for its truths and mysteries, he could easily command whatever his fancy dictated. A basic medical education placed him in an enviable position when he sought his veterinary degree from historic Alfort, and, not content with his stamp of approval, he entered the famous laboratories of Virchow, Koch, Chauveau, and Pasteur, to complete his technical training. Fortified with such advantages, it was not surprising that he should have made an impression in the struggling profession of America, and it may be said that he has held every post of honor that was within her gift. As editor, teacher, author, medical officer, associationist, and practitioner, he distinguished himself by his great learning and his devotion to her interests, and his death has cast a long shadow over the profession of the country.

Personally, Dr. Huidekoper was a companionable and genial gentleman, who made friends easily and held them firmly, by all of whom his death will be sincerely regretted.—*American Veterinary Review,* January, 1902.

We regretted very much to hear of the death of Dr. Huidekoper. We feel that we have lost a man of great worth to the veterinary profession. It seemed too bad that we should lose him just as this era of advancement for the profession was brightening.

S. B. NELSON, D.V.M., Pullman, Washington.

Yours and paper containing the sad news of the passing away of our esteemed friend and head of the profession received. We are aware of the great claims which Dr. Huidekoper enjoyed in dignifying a profession, of the popularity which accompanied him, and of the sincere affection with which the entire profession regarded him; of his untiring labors in endeavoring to bring recognition to a profession, of the sacrifices in the founding of an institution, and the ordeal through which he passed in his efforts, which must have operated as a serious blow in his life. He will stand out to future generations with distinctness.

S. E. WEBER, V.S., Shady Grove, Pa.

The loss to the general profession will be greatly felt, and particularly by the army branch of it, whose champions his noble wife and himself proved themselves.

R. B. CORCORAN, Vet., Presidio, San Francisco, Cal.

I am very sorry to learn of Dr. Huidekoper's death. I had the pleasure of meeting him at Detroit, in 1900, and conceived a very favorable opinion of him. His death is a loss to the entire profession.

F. TORRANCE, D.V.S., Winnipeg, Manitoba.

It is only a little while ago that I learned of the death of Dr. Huidekoper. Progressive veterinary medicine has lost its most ardent champion. I do regret it bitterly that I did not know of his illness, as it would have been a great satisfaction to me to cheer him with a heartfelt note while ill.

May his kindly spirit ever continue with all of us and the JOURNAL.

W. E. A. WYMAN, M.D., V.S., Milwaukee, Wis.

The death of your associate, Dr. Huidekoper, I mourn very deeply, having been a student under him in my freshman year at the New York College of Veterinary Surgeons. He examined us in anatomy while confined on his back in bed—an illustration of his faithfulness to duty and deep interest in his students.

J. HAYDEN STIMSON, V.S., Princeton, Mass.

I regret very much the death of Dr. Huidekoper, as I considered him a very valuable man for our profession.

M. JACOB, V.M.D., Knoxville, Tenn.

I was extremely sorry to learn of Dr. Huidekoper's death, and feel that the profession has sustained an incomputable loss thereby.

J. H. TIMBERMAN, V.S.

I was very sorry to hear of the death of Dr. Huidekoper. It is an irreparable loss to the veterinary profession.

ALEX. EGER, Chicago, Ill.

NECROLOGY.

THOMAS F. BARRON, V.S., died at Baltimore, Md., on November 20, 1901. This well-known veterinarian passed away at the age of fifty-nine years, after an acute attack of gastritis, which was followed by a greatly depressed heart action and death. He had not enjoyed vigorous health for several years, but his death was very unexpected during his last illness.

Dr. Barron had spent his whole life in the pursuit of veterinary medicine, having succeeded to his father's extensive practice, and was an earnest student, a devoted reader of veterinary literature, and had surrounded himself with one of the largest and most comprehensive veterinary libraries of the land. He filled an enviable position among a large clientage.

He took an active part in association work in his own State, being one of the first members of the Maryland State Veterinary Medical Association. He joined the American Veterinary Medical Association in 1887 and attended many of its meetings.

Somewhat reserved in manner, but a firm and devoted friend when once you had gained his good-will. Honored and respected by his colleagues in his native State, the following resolutions were adopted as a minute of the

MARYLAND STATE VETERINARY MEDICAL SOCIETY.

"Inasmuch as Divine Providence has removed from our midst our late associate, Dr. Thomas F. Barron, one of the pioneers of the veterinary profession in Maryland, we desire to record the deep sense of our loss of the gentlemanly attributes and the proficient professional ability possessed by him and accorded to all; and, further, to express to the one who mourns most deeply his decease our sincere sympathy and condolence."

AT the Episcopal Hospital in Philadelphia, on December 21, 1901, Dr. James Beatty died of purpura hemorrhagica, after about two weeks' illness.

Dr. Beatty was born in Philadelphia, December 21, 1859, and was just forty-two years old at the time of his death. He graduated at the Veterinary Department of the University of Pennsylvania in 1898. Soon after his graduation he was employed by the Government as a meat inspector. His first assignment under the Bureau of Animal Industry was in one of the Western dressed beef centres, but for the past two years he was stationed in Philadelphia. He was a life member of Orient Lodge, No. 289, F. and A. M., and had taken nearly all the degrees in Freemasonry. Of a genial disposition, he made many friends. C. J. M.

ASSOCIATION PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

SECRETARY RANCK, of the Keystone State Association, is out with a preliminary notice for the coming annual meeting of this organization, urging all veterinarians of that State to plan attendance and to prepare papers, reports of cases, and other matters of interest to the profession. The meeting on March 4th and 5th promises to be one of unusual interest, and we urge every JOURNAL reader to avail himself of meeting with his Pennsylvania colleagues at least once. The annual meeting is held in Philadelphia. Secretary Ranck is ever ready to answer all questions and afford any information to any and all members of the Association and profession.

COMMUNICATION.

DECEMBER 5, 1901.

DEAR SIR I made up my Mind to go to learn Somting and so I mend I was going to go to school and learn to be Horse Doctor Traid. Im 19 years old and I can Read ore write ore Spell. Not Extra good But you Justt about Think how young Lads Can Read If they never Care to Learn anything. But I can Learn good. If I want to. and so I want to know How them things stand. How Much would that Cost Me the Week board and all. and How Long would It Take me to Learn the Trade. You see Ill have to know a little about it. so when I come up so that I know where I have to go. If got a good Mind to go Today and so I would like to know How it is with the school when it starts and when it quits or goes out is what I mean so Pleas let me know How it is with everything Ill go Just as quick as the school starts. So that will be about What I know for this time. so Let me know How high it comes for a man in a Week Board and all. and How long it takes to be a good horse doctor. But dont Pay any atantion on that asking Ill come of course Ill come Just as quick as you want me or you can use me. I found out of the Colage in ——. I was after that business always. But I could never Catch on to it. and Now Ill stick on to it dont you forget it. I am young yet and I am Just in my write and my best years to Learn and I will learn Like the number 66. So Please advice Me everything What I asked you Please Mr. Doctor —— of —— Told me about this school in the City of ——.
and Doctor —— said so Id get a book and then I could look Things over a little and Learn Somting about it So Please Advise me every thing about what I asked you Please
Yours very Truly
—— ——
of —— —— ——
address
so if I would get one of them books that is Where the Horse is Drawed on of Course I cant learn anything. but Just to get the Name of the whole Horse. the vains and little of everything. So be so Kind and sent me one and write me soon. So That will be all and write me soon. if there is no school now or this Winter. then I will go to —— and work in the Blacksmith shop so Id like to know as quick. as I can. then I can earn a little Money yet.

Yours Truly

CORRESPONDENCE.

OFFICE OF STATE VETERINARIAN,
J. P. FOSTER, V.S.,
SELBY, S. D.

EDITOR JOURNAL OF COMPARATIVE MEDICINE, ETC.:

DEAR SIR: I would like to ask if you or any of your readers can inform me if any of the best authorities on veterinary science concede that mallein is a cure for glanders? The Pasteur people, in their directions printed on a leaf which is wrapped around each bottle of their mallein and mallein solution, speak of mallein as being used "for the diagnosis *and cure* of glanders" (the italics are mine); then, in the directions for its use, it is claimed that if a glandered animal fails to react for "*two consecutive injections*," it may be considered *cured*. I will now give you an account of a little experience I have had with this so-called *cure* (?).

About a year ago I was called to examine some horses on a farm in an adjoining county. The owner was suspicious that they were affected with glanders. I found a very bad state of affairs; out of twelve head owned on the place ten were either clinical cases or "reacters"; one of them had a complete perforation of the nasal septum, due to ulceration. Two head failed to react, and two of the "reacters" were to all appearances healthy.

I destroyed eight head and allowed the owner to keep the balance—four head—two of which, as I have mentioned, were "reacters." The barn in which they had been kept was thoroughly disinfected and given over to the cattle, and the four head of horses were removed to other out-buildings.

The two "reacters" were stabled by themselves, away from the two "non-reacters;" the harnesses were thoroughly disinfected by boiling, and the watering-troughs were properly attended to. The understanding with the owner was that he might keep the team of "reacters" until he finished his "spring's work" (providing that they did not become clinical cases in the meantime). They were to be kept entirely away from the other team, and the farm was to be under strict quarantine. After taking my departure from the farm the owner picked up one of the leaflets—which I had dropped on the barn floor—giving directions "for the diagnosis *and cure* of glanders."

He came to me a few days afterward and told me that he thought that he should have been given a chance to "cure" his horses with mallein, and severely censured me for not informing him that mallein was a curative agent for glanders. Glanders was quite prevalent in the neighborhood, and this party told a number that they were "foolish to allow their horses to be killed when they could *cure them themselves.*" Advice of this kind is not calculated to make the work of controlling an outbreak of glanders in a community any easier for the authorities. The giver of said advice sent away for a hypodermic syringe, clinical thermometer, and a supply of mallein, and began testing his team of "reacters." On April 30th he wrote me, enclosing the temperatures of a test just made, and said: "You see they do not react, and I guess they must be all right now." I wrote him that he must continue to keep his horses under strict quarantine, however, regardless of his mallein experiments. About the middle of May these horses began to discharge from the nostrils, and both were destroyed the latter part of June, with all the symptoms of glanders. I may be mistaken, but it seems to me that until it is well proven, and the veterinary profession admits that mallein *will* cure glanders, such stuff as is being spread broadcast by these people as to what mallein will do is almost criminal and on a par with the "horse book" issued by the manufacturers of spavin cures (?), which does not intimate that "farcy" is glanders or that it is incurable and dangerous to human life; and also gives a line of treatment for glanders, consisting of hyposulphite of soda, sulphate of copper, etc. I have used about 400 doses (1000 c.c.) of mallein solution put out by the Pasteur people, during the past eighteen months, and consider it all right as a *diagnostic agent;* but I think that it is about time for them to "cut out" this "cure" business.

Respectfully,
J. P. FOSTER.

AT Lexington, Ky., on Wednesday, December 25, 1901, Dr. John R. Hagyard, graduate of Ontario Veterinary College, class of 1875, to Miss Lula D. Potts. Such an added Christmas gift is a fitting close to the old year, and should ensure a happy and prosperous New Year.

THE New York County Veterinary Medical Association adopted the plan for their first meeting of the New Year of having demonstrations of a number of surgical operations. Members of the Association were selected for this part of their programme.

SELECTIONS.

CALVES AND PASTEURIZED MILK.

Dairy farmers will be interested in reading the following letter from Mr. P. Quirk, the manager of the Government Stud Farm at Berry, on the effect of Pasteurized milk in calf-rearing. He says: It has been freely stated that we cannot rear calves on Pasteurized milk at the Government Stud Farm. This I give a flat denial to. All the calves reared at our former farm, Kirkham, were fed on Pasteurized separated milk, and we never lost one of them, and they were the best reared lot I ever saw. Again, at Berry, when we arrived here, our Pasteurizing plant was not erected for some time, so we fed on raw whole milk, with the result that we lost several very valuable calves with white scours. We were at a loss to know what to do, and got veterinary advice and medicine, all to no purpose. Our next move was to erect the Pasteurizing plant and to feed upon Pasteurized milk. Since then we have lost only one calf, and his constitution was undermined by the feeding on raw whole milk.

When pure-bred stock, which are so much harder to rear, can be brought up strong and well developed on Pasteurized milk, surely cross-bred can. One of the main reasons why so many calves die is because the milk is not given at the proper temperature, which should be about blood heat—not hot at one feed and cold at another, as is too often the case. I know thousands of calves that were fed on separated un-Pasteurized milk, and a very high percentage of them died from white scours. One large dairyman offered me £100 if I could give him a recipe to cure white scours, which is contagious. My opinion why such a high percentage of calves is lost is that nature ordained that a calf should suck his food, and not gulp it down, to remain in its stomach an unyielding and indigestible mass which turns to white scours. The glands of the mouth contain the saliva which should pass with the food into the stomach. When the calf is forced to drink its milk out of a bucket these glands are inactive, the saliva does not rise with the food to assist digestion, the animal suffers, becomes bloated and stunted, is frequently scoured, and under these conditions the farmer cannot rear healthy, profitable calves. To overcome these difficulties, we are now using Clarke's patent feeders, with good results, and I am convinced that the salivation excited by the feeders has a nutritious and beneficial effect, and that the old system of "poddying" calves was as cruel to them as it was thriftless and unprofitable to the owner.

Mr. P. H. Morton also says: My attention having been called to a statement made by Mr. Alexander Campbell, M.P., at a meeting of dairy farmers at Kiama a short time ago, to the effect that I had discontinued giving Pasteurized milk to calves on my dairy farm at Barrengarry, I desire to say that such is not the case. All milk, whether for separation, for cream, or for calves, is put through a Pasteurizer. The calves for some time past and now being reared at Barrengarry on Pasteurized skimmed milk (younger ones get some fresh milk added to the Pasteurized) are doing splendidly.—Sydney Station Farm and Dairy, *Agricultural Journal*, October 24, 1901.

A JOKE IN THE WAR OFFICE.

Not often is laughter heard in the solemn office in Pall Mall. But Captain Champion, of the Twenty-first Lancers, and brother to Mr. H. H. Champion, the well-known Socialist and lecturer, has recently provoked even the staidest official to unwonted merriment. This young officer, who, by the by, greatly distinguished himself at Omdurman, was sent a few weeks ago on special remount duty to South Africa, and it is his formal reports home upon his duties which have so gladdened the hearts of the wearied War Office authorities. Captain Champion came to loggerheads with a veterinary surgeon on board the ship. Here is the passage of his report which deals with the unfortunate vet.'s methods in taking the temperature of the horses:

"I didn't at first deem my own knowledge of veterinary science sufficient to suspend him, although his methods were those I had not seen practised before. For instance, putting a thermometer in the horse's mouth and leaving it there. This may be the correct way of taking a fevered animal's temperature, but never having seen it done in this manner it caused a certain amount of prejudice in my mind, to say nothing of the fact that the supply of thermometers under such circumstances naturally proved wholly inadequate, the two which had been sent in the medicine chest being speedily consumed by the aforesaid animals. I, therefore, considered that Mr. ———, though the driver of quite a successful cat and dog practice in ———, was not competent for the treatment of sick horses on board one of H. M. transports."—*M. A. P.*, *Veterinary Record.*

EXCHANGE.

A JAPANESE DAIRY COMPANY.—Japan is not a dairy country, but there are a few students of dairying who, having obtained an insight into the milk question in this country, have gone back to sow the seed of sanitary milk production. The following circular shows that while they may be weak in English they are strong on good food and clean milk.

NOTICE.

KASHIYAMA MILK & CO.

KARUIZAWA.

The above company, being hither largeing engaged for the milkage business, have already obtained the esteem of the general public for the fresh and pure milk they furnish, and now they are able to extend their business still further as the under mentioned. Any order will be welcomed by the company at a most favorable terms.

1. Ten or more Jersey cows now in hand. Each one is certified by the veterinarian proving her sound health.
2. The pasture land is located in a high and extensive field (Tachikobara) at Karuizawa, where the fresh air and best herbage existed there, keep the cows, without a doubt, much more healthiness.
3. The food provided for them are wheat, hay, and others. We take a special attention for their food, which is, in other words, the material of milk.
4. The fresh and pure milk thus obtained is promptly delivered to the customers twice a day (noon and before noon), and no delay to be occurred.

Certificate.

This to certify that the cows for milkage in the possession of Kashiyama Milk Co. are quite healthy and have no diagnosis to be blamed at all. The Veterinarian :

MASANORI SHIRAI.

To Kashiyama Milk & Co., Karuizawa.

—*Hoard's Dairyman*, September 27, 1901.

AMONG THE COLLEGES.

ONTARIO VETERINARY COLLEGE.

THE Christmas examination of this college was held in the college buildings on Temperance Street on Friday. The following gentlemen, after passing a stringent examination before the usual examining board, were awarded diplomas :

Graduates : Wilson A. Bisbee, Cleveland, Ohio ; Alexander Doherty, Ellesmere, Ont.; J. Leonard Faragher, Lorain, Ohio ; Albert T. Ford, Neustadt, Ont.; A. P. Lubach, Boonton, N. J.; John L. McCoy, Sussex, N. J.; William D. McMullen, Chilton, Wis.; Arthur E. Melhuish, Toronto ; T. C. Neff, Jr., Long Glade, Va.; Robert J. Norton, Owen Sound ; J. Arthur Royce, Lincoln, Neb.

BOOK REVIEW.

AN ATLAS OF CLINICAL MEDICINE, SURGERY, AND PATHOLOGY.

JONATHAN HUTCHINSON, F.R.S., General Secretary of the New Sydenham Society, has requested Messrs. P. Blakiston's Son & Co., of Philadelphia, the American agents of the Society, to announce the publication of *An Atlas of Clinical Medicine, Surgery, and Pathology*, selected and arranged with the design to afford, in as complete a manner as possible, aids to diagnosis in all departments of practice. It is proposed to complete the work in five years, in fasciculi form, eight to ten plates issued every three months in connection with the regular publications of the Society. The New Sydenham Society was established in 1858, with the object of publishing essays, monographs, and translations of works which could not be otherwise issued. The list of publications numbers upward of 170 volumes of the greatest scientific value. An effort is now being made to increase the membership, in order to extend its work.

Dr. John Wende, of Buffalo, N. Y., was the leader of a November party of thirteen hunters in the Adirondack mountains, where they bagged thirteen deer. Dr. Wende brought down one of the largest bucks with his unerring aim. Future veterinary meetings will be regaled with wonderful stories of deer-stalking.

SOCIETY PROCEEDINGS.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The December meeting of this Association was held at the northwest corner of Broad and Filbert Streets, December 10, 1901, with the following members of the profession in attendance: Drs. Houldsworth, Pearson, Eves, Goentner, Hoskins, Marshall, Rhoads, Underhill, Ridge, Williams, Powell, Lintz, Sellers, Harger, Carter, Gillilan, Seidel, of the veterinary profession, and Dr. M. P. Ravenel, of the medical fraternity. Thirty-five students of the Veterinary Department of the University of Pennsylvania were also in attendance. After the regular business was transacted Dr. Pearson delivered an address on "Observations from Foreign Veterinary Colleges," giving all the details of the buildings, business management, students' homes, as well as the connections with State or government.

He took as a basis the Berlin school, which is the oldest in Germany, being founded 110 years ago. It stands on the ground on which it was founded, a tract of land of twenty-five acres, on the outskirts of the town; but since its foundation the city has grown so that residences and stores are built all around the college. They are at present building a new structure, to be used exclusively for teaching anatomy. On the first floor are rooms for janitor, storage, and freezing. On the second floor are rooms for dissecting; these rooms are supplied with large skylights and stationary tables. The third floor is used for a museum of anatomy.

Another new building is that used for the department of hygiene, under Professor Ostertag, who teaches meat and milk-inspection and bacteriology. Every appliance is to be found here, and this department is directly under the professor and six assistants. Connected with this building are stable accommodations for experimental animals for antitoxin, and for diseases not due to bacteria—helminths, etc.—also a large dog hospital.

There are rooms for operating purposes, for clinics, and also for a pharmacy. A novel feature is a large cow stable, built on model plans, for forty cows of the most improved types and breeds. This is kept and managed as a model dairy, and the milk is sold in the neighborhood. The clinics and hospitals for large animals are all one-story buildings, arranged in a court, consisting of blacksmith shop, operating-room, clinic rooms, special rooms for surgical cases, riding school, exercise rooms, isolation wards; there is also provided a ward for animals suffering from internal and infectious diseases. The courtyard is covered with soft sand, through which horses are led to test for soundness.

The capacity of the hospital is about one hundred horses. From twenty to fifty animals are treated in the out-clinic daily.

A large dormitory building for military students is provided and supported by the government. These students must serve as long in the army as they spend in the college.

The other schools are on general plan very much as Berlin; some teach special branches, to the detriment of others. The Hanover School is the newest equipped. The Dresden School is hampered for room. The Munich

School has been recently re-equipped. At Stuttgart is to be found the well-known Hoffman table for operations on horses, on which 1200 horses have been operated upon in two years.

The Budapest (Hungary) School is comparatively new, having been built about fifteen years ago. This school is supported by the government. It must be admitted that schools supported by governments are better equipped than those which are not, which accounts in a large measure for our inferior schools here in the United States.

The London School, founded by Bell in 1792, stands on leased ground, and is supported by friends of the school and students. The examinations are conducted by a committee appointed by the Royal Veterinary Society, and graduates who pass this examination are admitted to this Society. Before concluding this valuable discourse Dr. Pearson drew some valuable and.interesting comparisons with our schools, and pointed out the advantages and disadvantages found here, but thought they were gradually developing toward Continental systems.

Dr. M. P. Ravenel, bacteriologist for the Pennsylvania Live-stock Sanitary Board, having been abroad as a representative from that Board at the "Tuberculosis Congress at London," was the next speaker for the evening. Dr. Ravenel was one of the first men to take issue with Professor Koch's statement as to the communicability of tuberculosis from cattle to man. He says, in part, that Koch's statement was entirely too sweeping and too radical; he overlooked the statistics of other pathologists; he was irrational and unreasonable, for the following reasons: 1. That no animal is absolutely immune to tuberculosis. 2. Several cases definitely known, and many cases not clearly proven, have been placed on record in which the infection was traced to the bovine species. 3. It has been definitely proved that any infectious or contagious disease which attacks this species of animals is also transmissible to man. Dr. Ravenel then explained that all the findings and experimental work brought forward by the "Tuberculosis Congress" were nothing new, for under the plans which Dr. Leonard Pearson formulated for experimental investigation for the S. L. S. B. of Pennsylvania on tuberculosis covered all the essential features, and in fact some of them were entirely new to foreign experts. Dr. Ravenel thinks that this agitation will bring good results, for although there is now a storm of protest, it will also result in vast experimentation all over the world, and thus end in some definite scientific conclusion.

A vote of thanks was tendered Drs. Pearson and Ravenel by the Association for their well-prepared and instructive addresses. The next in order was a carefully prepared paper on "A Case of Tetanus, with Antitoxin Treatment," by Dr. B. N. Underhill, of Media. The doctor used antitoxin in large doses, which seemed to ameliorate the condition, and the horse is evidently making a prompt recovery. This paper caused a great amount of discussion, which was entered into by Drs. Williams, Harger, Sellers, Ranck, Eves, Ridge, Goentner, Pearson, Marshall, Hoskins, Rhoads, and others.

The consensus of opinion favored tetanus antitoxin as a valuable prophylactic measure, but not always a reliable curative measure. Dr. Pearson then made a motion to have the President appoint a Committee to frame resolutions to be sent to Governor Stone, favoring Dr. Hoskins' reappointment on the State Examining Board. Carried. The Committee appointed consisted of Drs. Goentner, Marshall, and Ranck. The following committees were appointed by President Rhoads:

Committee on Milk: W. H. Hoskins, Chairman, H. P. Eves, W. L. Rhoads, W. H. Ridge, Leonard Pearson.

Committee on Diseases: C. J. Marshall, Chairman, E. M. Ranck, J. R. Mahaffey, J. D. Houldsworth, J. M. Carter.

Programme Committee: E. M. Ranck, Chairman, James Mecray, B. M. Underhill, W. S. Kooker, A. F. Schreiber.

Press Committee: J. M. Carter, Chairman, C. T. Goentner, Charles Lintz, Francis Bridge, Thomas B. Rayner.

After the announcement of the above committees the Programme Committee secured papers for the January meeting from Drs. C. J. Marshall and S. J. J. Harger, the subjects of which will be furnished later. A motion to adjourn was carried to meet the second Tuesday evening in January.

E. M. RANCK,
Secretary.

CALL FOR THE FOURTEENTH ANNUAL MEETING OF THE IOWA STATE VETERINARY MEDICAL ASSOCIATION.

THE next annual meeting of this Association will be held in the clubroom, Savery Hotel, Des Moines, Iowa, on Tuesday and Wednesday, February 11 and 12, 1902.

The members of the Association are earnestly requested to attend and enter into the work and deliberations of the meeting. The meeting can be made a success only through the co-operation of the members of the Association. Their individual success and that of the profession depend in a large measure upon the strength of the Association. It is their duty to make a strenuous effort to further its interests whenever an opportunity presents itself. This is one of those opportunities.

Attention is directed to the fact that the first session is announced for 9.30 A. M. on Tuesday, February 11th, and must begin then in order that the programme may be completed within the time limit; also, the papers will not be presented until the afternoon of Wednesday, February 12th, at which time the election of officers and appointment of committees will take place. Thus it can be seen that the members will need to leave home at such a time as will enable them to reach the place of meeting by the time of the opening of the first session, and to so arrange their affairs that they need not leave the meeting until the close of the last session.

Those who regularly attend these meetings unanimously testify to the benefits they receive in the way of knowledge gained from the reports, papers, and discussions, and to the stimulation and inspiration afforded by personal contact and acquaintance with others who are devoting themselves to the same life work. The greater the attendance the greater these individual benefits will be. Everyone who attends will be amply repaid for the time and money expended in so doing.

All graduated veterinarians who are not members are cordially invited to be present at the meeting and to join in active membership in the Association. All others who are interested in the meeting are given a cordial invitation to be present at its sessions.

Programme—First Day. "Reports of Cases—Anthrax in the Horse," Dr. W. Hamilton; "Chronic Atrophic Orchitis in the Bull," Dr. H. C. Simpson; "Ravages of the Strongylus Tetracanthus," Dr. S. H. Kingery; "Urethral Calculus and Paralysis of the Penis," Dr. E. G. Marten; "A Cow Case," Dr. G. P. Statter; "Typhoid Fever in a Horse," Dr. L. U. Shipley; "A Case in Practice," Dr. A. H. Quinn; "Impaction of the Small Colon," Dr. J. Vincent; "Report of a Case," Dr. J. Thomsen.

Programme—Second Day. In the forenoon a clinic will be conducted at the infirmary of Dr. H. E. Talbot, No. 607 Des Moines Street. The demonstrations have been distributed among a number of good operators, and promise to be very instructive. Papers: "Abortion in Cows," Dr. P. Malcolm; "Amputation of a Bull's Penis," Dr. G. M. Walrod; "Parturition Cases," Dr. W. Drinkwater; "Obstinate Constipation," Dr. J. W. Griffith; "External Ulcerative Anovulvitis," Dr. S .T. Miller; "Rabies," Dr. D. E. Baughman; "Symptoms of Rabies," Dr. S. H. Johnston; "The Trials of the Veterinary Board," Dr. H. E. Talbot; "Cæsarean Section," Dr. H. L. Stewart; Volunteer Papers; Election of Officers; Report of Committee on Resolutions; Appointment of Committees; Adjournment.

JOHN J. REPP,
Secretary pro tem.

THE ONTARIO VETERINARY ASSOCIATION.

THE annual meeting of this Association was held in the Ontario Veterinary College, Toronto, Canada, on Friday, December 20, 1901.

In the absence of the President, Dr. H. S. Wende, the First Vice-President, Dr. J. H. Tennant, took the Chair, opened the meeting at 11 A. M., and called for the usual routine business, viz., the reading of the minutes of the last meeting, and the Secretary's, Treasurer's, Registrar's, and Auditor's reports, which were read and approved.

The following new members were then duly proposed and accepted: Messrs. W. J. R. Fowler, V.S.; C. Brind, V.S.; J. H. Engel, V.S.; A. D. Stewart, V.S., and R. A. Milne, V.S.

A number of communications were read.

It was moved by Dr. O'Neil, and seconded by Prof. Reed, of the Guelph Agricultural College, that the Secretary be instructed to write to Mrs. R. S. Huidekoper, and express to her and her family the deep sympathies of the members of this Association with them in the sad loss they have recently sustained by the death of the late eminent veterinary surgeon, R. S. Huidekoper.

The meeting then adjourned to meet after luncheon

The meeting re-opened after luncheon, the President, Dr. H. S. Wende, in the Chair. The President on opening the meeting explained his absence as being in consequence of the non-arrival of his train on time, and after a short address called for the reading of papers.

Prof. J. H. Reid, of Guelph, described a case of urethral calculus in a gelding. He removed it by a surgical operation. The operation was followed by considerable swelling of the penis, which soon subsided. A short time afterward another calculus appeared in the urethra; this one was much larger than the first. He removed this also by a similar operation. Both the calculi were situated near the ischial arch. There was some constriction of the urethra following the operations, but complete recovery resulted.

Dr. Orr Graham, V.S., read a paper on "Œdema of the Tongue of the Horse," of which he had seen some cases. The conditions existing were rapid swelling of the tongue, so great that it completely filled the cavity of the mouth, pressing the jaws widely apart, and the tongue protruding some distance, accompanied by an abundant discharge of fluid from the mouth and nostrils. In two instances the animals died from suffocation. The disease came on very rapidly and without any cause that could be discovered. When the swellings began to recede the recoveries were rapid and permanent.

Dr. S. E. Boulter read an excellent paper on the necessity for observing kindness and gentleness in the treatment of our patients, and although severe and painful operations may sometimes be necessary, everything possible should be done to alleviate pain and obviate suffering.

Dr. D. K. Smith, Professor of Pathology and Microscopy in the Ontario Veterinary College, read a very useful and practical paper on preserving and preparing pathological specimens. He gave demonstrations of the use of the microtome, also of staining and mounting microscopical specimens.

Dr. W. J. Wilson read a paper on the treatment of tetanus. He claimed that "serum therapy" has not brought the good results that its advocates anticipated.

The reading of the papers was followed by interesting discussions upon them, in which many members participated; and it was moved that the thanks of the meeting be tendered to those gentlemen who had contributed the papers.

The sum of $25 was appropriated for a medal to be competed for by the students of the Ontario Veterinary College at the approaching spring examination.

The Secretary was instructed to send postal cards to the duly qualified veterinary practitioners in Ontario who have not registered in accordance with the act of incorporation of the Ontario Veterinary Association, requesting them to register; also to get a number of new copies of the Ontario Veterinary Register printed.

The following gentlemen were appointed to read papers at the next annual meeting: Messrs. L. A. Wilson, J. D. O'Neil, W. J. Wilson, S. E. Boulter, R. A. Milne, C. Brind, Dr. D. K. Smith, and J. H. Tennant.

The following is the list of officers for the ensuing year: J. H. Tennant, President; W. Steele, First Vice-President; W. Lawson, Second Vice-President; C. H. Sweetapple, Secretary and Treasurer.

Directors: Messrs. C. Brind, J. H. Engel, S. E. Boulter, L. A. Wilson, J. H. George, F. G. Hutton, R. A. Milne, and F. Daly.

Auditors: C. Elliott and J. H. Reed.

Delegates to the Industrial Fair, Toronto: Prof. A. Smith and C. Elliott.

Delegates to the Western Fair, London: Messrs. J. H. Tennant and J. D. O'Neil.

C. H. SWEETAPPLE, V.S.,
Secretary.

NOTES.

The National Live-stock Association held a meeting in the Stuttgart Theatre, Chicago, from the 3d to the 7th of December. A good many veterinarians were drawn to Chicago by this meeting and by the National Live-stock Exposition, which was held in Chicago during the same week.

Among the veterinarians present were Dr. W. H. Dalrymple, of Louisiana; Dr. J. O. Greeson, of Indiana; Dr. A. W. Bitting, of Indiana; Dr. M. E. Knowles, of Montana; Dr. Leonard Pearson, of Pennsylvania; Dr. C. A. Cary, of Alabama; Dr. A. T. Peters, of Nebraska; Dr. S. D. Brimhall, of Minnesota; Dr. J. J. Repp, Dr. J. H. McNeal, and Dr. L. A. Kline, of Ames, Iowa; Dr. J. I. Gibson, of Iowa; Dr. C. A. Gresswell, of Colorado.

The exposition consisted chiefly in a show of fat cattle and cattle of the beef breeds, especially the Aberdeen-Angus, Hereford, and Short-horns. It was the largest collection of cattle of this class that has ever been brought together in the United States. There were over 1000 pure-bred cattle in the show and more than 300 car-loads of fat cattle and breeders. There was also a very good exhibition of draught horses, sheep, and swine.

It is needless to say that the Chicago veterinarians were out in force. Drs. Pierce, Lovejoy, Hughes, McKillip, Baker, and Merillat were assiduous in their attendance, and the inspectors of the Bureau of Animal Industry, Drs. Dyson and Houck, were present as much as their other duties would permit.

The National Live-stock Association is composed chiefly of range cattlemen, and it is an organization in the interest of the range cattle industry, although there were a few delegates from the Eastern and Central States and from organizations not associated with the range cattle business. Of course, it was to be expected that such an organization would be opposed to the Grout bill, which proposed to put a tax on oleomargarine when it is colored to imitate butter. In fact, the organization has on every possible occasion taken opportunity to oppose the Grout bill.

When a resolution condemning this bill came before the organization a lively battle was waged. The opposing forces in this contest happened to be led by two veterinarians. Dr. Leonard Pearson, of Pennsylvania, was the spokesman for the side favoring the Grout bill, and Dr. M. E. Knowles, of Montana, was the floor manager and parliamentarian of the side opposed to the Grout bill. As was expected, the opponents of the bill carried their resolution, but by a majority much smaller than had been anticipated.

It was shown at this meeting that the live-stock industry of the country is in a most healthy and flourishing condition. There were never before as many animals in the country, and their value was never before as great.

Perhaps the most interesting address of the whole meeting was read by Mr. Le Grande Powers, in charge of the live-stock statistics of the United States census. Mr. Powers showed that as a result of a more accurate inquiry in relation to the number and distribution of farm animals made by the enumerators of the last census it has been found that there are far more domestic animals in the country than has hitherto been known.

Altogether the meeting was very successful, and, to the delegates from the West, profitable.

The horse-meat butcher shops of Vienna, of which there are no fewer than 185, present a clean and attractive appearance, and are in no way distinguishable from shops where the usual kinds of meat are sold save by the sign announcing their specialty. Restaurant keepers who serve horse-meat must designate this fact in a special column on the bill of fare offered to patrons.

The State of Ohio has a very active organization throughout its Commonwealth looking to the prevention and control of tuberculosis. Active representatives of the medical and veterinary professions, county and city boards of health, and others interested in public sanitation make up the body.

Mr. Carnegie's munificence: We have just learned from Professor McCormack, Secretary to the Carnegie Trust for the Universities of Scotland, that if a youth have the following qualifications his college (veterinary) fees will be paid by the Trust for him:

(1) He must be over sixteen years of age; (2) must be of Scottish birth or extraction, or must have given two years' attendance, after the age of fourteen years, at a school or institution under inspection of the Scotch Education Department; and (3) must be qualified by preliminary examinations under the ordinances of the Scottish Universities Commission and the regulations of the Joint Board of Examiners to attend the classes for which payment of fees has been claimed.—*Veterinary Journal*, December, 1901.

PERSONALS.

Among the first-day visitors to the Dog Show in Philadelphia was Dr. H. Clay Glover, of New York City.

Dr. W. F. Heyde, of St. Louis, Mo., conducts a well-equipped infirmary in connection with his practice.

Dr. C. J. Marshall, of Philadelphia, was veterinarian to the Philadelphia Dog Show in November.

Dr. John E. Brown, Secretary of the Iowa State Veterinary Medical Association, has removed to Chattanooga, Tennessee, owing to the impaired health of members of his family.

Dr. O. M. Norton, graduate of the Veterinary Department of the University of Pennsylvania, and located at Aldenville, Pa., has just returned from a trip to South Africa with a British transport carrying horses and mules.

Dr. W. A. Thomas, of Lincoln, Nebraska, a graduate of the Veterinary Department of Iowa Agricultural College, fills the rôle of State Veterinarian of that State.

Dr. W. B. E. Miller was seriously injured in December by an unprovoked assault by a ruffian in the city of Camden.

Dr. Leonard Pearson, of Philadelphia, Pa., spent several days in New York State during December.

Dr. J. E. Foster, of Coshocton, Ohio, takes an active interest in the general work of the Ohio Society for the Prevention of Tuberculosis.

Governor William A. Stone, of Pennsylvania, has just reappointed Dr. W. Horace Hoskins, of Philadelphia, a member of the State Veterinary Board of Veterinary Medical Examiners.

Dr. T. A. Donaldson, of Manchester, Connecticut, has removed to Hartford, Connecticut, where he will resume active practice again. Dr. Donaldson has quite recovered from his many months of impaired health.

Dr. William Dougherty, of Baltimore, Md., was a visitor to Philadelphia in December to pay a last tribute to the late Dr. Rush Shippen Huidekoper.

Dr. D. E. Salmon, of the Bureau of Animal Industry, has just issued a reprint of an article prepared by him for the *Medical Record*, entitled "Is Rabies a Specific Disease?" Dr. Salmon is one of the foremost and most prolific writers on this subject in the world.

Dr. Lemuel Pope, of Portsmouth, N. H., is to give a course of lectures in veterinary science to the students of the New Hampshire Agricultural College.

Dr. Charles L. Colton, of Englewood, N. J., has associated himself with Dr. R. P. Lyman, of Hartford, Conn., as assistant.

Dr. W. H. Dalrymple, of Baton Rouge, La., has been selected as a member of the Executive Committee of the National Live-Stock Association. Dr. Dalrymple's long years of earnest work in the betterment of live-stock conditions in the South makes his appointment one of special merit.

Dr. Coleman Nockolds, formerly of the Grand Rapids Veterinary College, is now located at Batangos, P. I., with the cavalry regiment to which he is attached.

Dr. Lemuel Pope, of Portsmouth, N. H., was recently operated upon for appendicitis, and is recovering. He had been ill since November 3d, but has now resumed his practice.

Dr. Ora W. Everly, of Holmesville, Ohio, has been appointed assistant inspector of the Bureau of Animal Industry, and has been assigned to South St. Joseph, Mo.

The Alumni Register of the University of Pennsylvania, refers to our esteemed colleague, Dr. W. H. Ridge, of Trevose, Pa., as a "scientific tiller of the soil."

Dr. C. Edward Leech, formerly of Milwaukee, Wis., has located at Winona, Minn., where he is actively engaged in practice.

Dr. George W. Pope, Secretary of the Veterinary Medical Association of New Jersey, new address is Athenia, N. J., in place of Garfield. The new quarantine station is at Athenia.

Dr. Veranus A. Moore, of Ithaca, N. Y., was a visitor to Washington, D. C., and Philadelphia early in November.

Dr. Jacob Smith, formerly practising at Gettysburg, Ohio, has removed to Troy, Ohio.

Dr. Leonard Pearson, of Philadelphia, made a flying trip in November through parts of New York, Pennsylvania, Maryland, and West Virginia.

Dr. William Dougherty, of Baltimore, Md., was a visitor to the JOURNAL office in November.

Mr. R. A. Pearson, of the Dairy Department of the Department of Agriculture, was one of the speakers at the State Dairymen's Association in Nebraska in November.

Dr. Leonard Pearson, State Veterinarian, was a visitor to the "Smoky City" in November.

Dr. E. C. Lacock, of Allegheny, Pa., President of the Allegheny County Veterinary Medical Association, was a visitor to Philadelphia early in November.

Dr. P. L. Gaunt, of Burlington, N. J., came near losing his life in November from an accidental dose of aconite taken in mistake.

Dr. A. T. Sellers, of Camden, N. J., was quite painfully injured by the kick of a horse in the sales-mart of West Philadelphia.

Dr. James W. Sallade, of Auburn, Pa., was a visitor to Philadelphia in December. Dr. Sallade is President of the State Board of Veterinary Medical Examiners.

Dr. Raymond Barber, of Newtown, Pa., is a matriculate at the Jefferson Medical College, pursuing a course of human medicine.

Dr. A. T. Sellers, of Camden, N. J., received the appointment of veterinarian to the police department stables in January.

Dr. John W. Adams, of Philadelphia, escaped with a few bruises, in a serious runaway accident in January. Several persons were injured seriously before the death of the mare occurred in her wild flight.

Dr. Charles E. Cotton, of Minneapolis, Minn., spent two weeks in the East during the month of January.

FOR SALE

Property and practice in a good location, twenty-five miles from Lansing, Mich., good country and good stock; nearest opposition ten miles; practice averaging twenty thousand dollars per year. Reason for selling, poor health. For particulars apply to

J. S. GRANT, V.S., Portland, Michigan.

THE JOURNAL

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THE COMPARATIVE VIRULENCE OF THE TUBERCLE BACILLUS FROM HUMAN AND BOVINE SOURCES.[1]

BY MAZYCK P. RAVENEL, M.D.,
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BACTERIOLOGIST OF THE STATE LIVE-STOCK SANITARY BOARD OF PENNSYLVANIA.

(*From the Laboratory of the State Live-stock Sanitary Board of Pennsylvania.*)

THE relation existing between the various types of the tubercle bacillus found in man and in the lower animals has been the subject of much discussion for several years past, and studies of the morphology, biology, and virulence have been undertaken with the object of determining whether or not constant differences could be detected in the organism from these two sources sufficient to justify their classification as distinct species.

From a purely practical stand-point the question is narrowed to a study of the bacillus as found in man and in cattle, and in the determination of the relation they bear to each other. The importance of this study is of value not only to the physician, anxious mainly for the protection of his clients, but to the general public, who look to the medical profession for guidance in such matters, and perhaps even more so for those who are concerned in the framing of laws and direction of public measures looking to the suppression of tuberculosis in man and animals. Efforts in this direction often meet with strong opposition, and extreme statements are made on very scanty evidence, which render the task of the hygienist much more difficult, and may result in the failure of his purpose. The lack of positive and authoritative knowledge in regard to this matter has in recent years led to the adoption of retrograde measures in several places. The problem is one that can be entirely cleared up only by a long series of observations and carefully conducted experiments, which are tedious, exacting, and require a considerable lapse of time before results can be had. The correct interpretation of these results is in many cases not an easy matter.

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[1] Read before the British Congress on Tuberculosis, Section on Pathology and Bacteriology, London, July 23-26, 1901.

The identity of the tubercle bacillus as found in the mammalia went unquestioned for many years, and laws for the prevention of the transmission of the bacillus of cattle to man have been based mainly on this belief. In America, Dr. Theobald Smith was the first to take up the systematic study of the bacilli isolated from various of the lower animals and man, and to call attention to certain fairly constant differences observed in the organisms from the two sources, which he considers sufficient to justify classifying them as distinct varieties or races, though his experiments "show unmistakably the close relationship existing among the various cultures studied."[1]

Dr. R. R. Dinwiddie,[2] Pathologist and Bacteriologist of the Arkansas Agricultural Experiment Station (U. S. A.), has carried out quite extensive experiments in which he has compared the virulence of the human and bovine tubercle bacillus, and also human tuberculous sputum with bovine material, for a number of the domestic animals, his results showing a greater power for both the bovine bacillus and material than for the human.

The vast practical importance of the matter, no less than its great scientific interest, was early realized by Dr. Leonard Pearson, State Veterinarian of Pennsylvania, and under his direction we have devoted much of our attention at the laboratory of the State Live-stock Sanitary Board for more than two years past to the study of the tubercle bacillus obtained from various cases of tuberculosis in man and in cattle.

In the carrying out of this work I have had throughout the efficient assistance of Dr. S. H. Gilliland, on whom a large share of the labor has fallen, and to whom is due much of the credit in its successful issue. To him and to the several physicians who have interested themselves in obtaining material for us I beg to express my obligation. During a considerable portion of the time that Part II. of the experiment was in progress Dr. W. G. Shaw was in charge of the animals, and did much of the work; while the bovine material for the inoculations was obtained and prepared by Dr. J. J. Repp, both of whom were at the time connected with the laboratory.

Our experimental work has been divided into two parts :

1. Isolation and study of pure cultures from various sources in man and cattle.

2. Testing the pathogenic power of tuberculous material of human and bovine origin.

1. Under the first division thirteen cultures, seven of human and six of bovine origin, are included in this report. Of these two human and two bovine have been compared under conditions as nearly identical throughout as it was possible to obtain them.

Cultures H (bovine) and K (human) were isolated within a few days of each other, while L (bovine) and M (human) were made on the same day. The first sub-cultures of both pairs were made on the same day, and all transfers since have been made simultaneously. The comparative pathogenicity of these cultures is shown in Tables I. and II.

Cultures H and K were tested also for puppies and pigs by feeding, as described below.

Culture H was recovered from the horse, goat, two puppies, two hogs, and man; while culture K was recovered only from two puppies and two hogs, the absence of lesions in other animals inoculated making it impossible to obtain a series comparable to culture H. The virulence of these recovered cultures, with the exception of that from the horse, was tested for guinea-pigs and rabbits, the results being given in Table III.

Human cultures I, J, U, and W, and bovine cultures F, Q, QQ, and T, were isolated as occasion arose, and their virulence tested only for guinea-pigs and rabbits. The dose and mode of inoculation were uniform in all cases, and the animals were kept under the same conditions, but beyond this the tests are not entirely parallel. The results are given in Table IV.

In addition to those cultures here mentioned we have isolated and examined nine others, morphologically and culturally. These have been taken into account in forming our conclusions, as well as the very careful descriptions given by Dr. Theobald Smith of the cultures studied by him.

The terms "human" and "bovine" have been applied to cultures to denote their origin from man or from cattle. Each culture is designated by a letter of the alphabet, and the generation indicated by a small figure at the lower right corner. Cultures which have been inoculated and recovered retain their original letter, a second letter inclosed in brackets being added to mark the recovered culture.

TABLE I.—SHOWING VIRULENCE OF BOVINE CULTURE H.

Culture.	Age, days.	Animals.	Date of inoculation.	Method of inoculation.	Dose in c.c.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
H_2	15	Guinea-pig	Sept. 2	Subcutaneous	1	290 gm.	174 gm.	116 gm. loss	Sept. 25	…………	23 days	28⅓ days
H_2	15	" "	" 2	"	1	310 "	224 "	86 " "	Oct. 9	…………	37 "	
H_2	15	" "	" 2	"	1	300 "	200 "	100 " "	Sept. 27	…………	25 "	
H_2	15	Rabbit	" 2	"	1	1730 "	…………	…………	Nov. 7	…………	66 "	56½ "
H_2	15	"	" 2	"	1	1580 "	…………	…………	Oct. 19	…………	47 "	
H_2	29	Dog	" 16	Intrapulmonary	2	20 lbs.	18 lbs.	2 lbs. loss	Nov. 14	…………	59 "	62½ "
H_2	29	"	" 16	"	2	60 "	…………	…………	Nov. 21	…………	66 "	
H_3	73	Horse	Dec. 9	"	14	1030 "	990 lbs.	40 lbs. loss	…………	June 25, 1900	6 m. 16 d.	
H_3	73	Goat	" 9	"	4	79 "	61 "	18 " "	Dec. 31	…………	22 days	24 "
H_3	73	"	" 9	"	4	29 "	20¼ "	8¾ " "	Jan. 4, 1900	…………	26 "	

SHOWING VIRULENCE OF HUMAN CULTURE K.

Culture.	Age, days.	Animals.	Date of inoculation.	Method of inoculation.	Dose in c.c.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
K_2	15	Guinea-pig	Sept. 2	Subcutaneous	1	380 gm.	270 gm.	110 gm. loss	Oct. 14	…………	42 days	38 days
K_2	15	" "	" 2	"	1	320 "	175 "	145 " "	Sept. 30	…………	28 "	
K_2	15	" "	" 2	"	1	310 "	215 "	95 " "	Oct. 16	…………	44 "	
K_2	15	Rabbit	" 2	"	1	1375 "	1970 "	595 " gain	…………	May 25, 1900	8 m. 23 d.	8 m. 23 d.
K_2	15	"	" 2	"	1	1500 "	1820 "	320 " "	…………	" 25, "	8 m. 23 d.	
K_2	29	Dog	" 16	Intrapulmonary	2	21 lbs.	20 lbs.	1 lb. loss	…………	Apr. 20, "	7 m. 4 d.	6 m. 19 d.
K_2	29	"	" 16	"	2	57 "	54 "	3 lbs. "	…………	Mar. 19, "	6 m. 3 d.	
K_3	79	Horse	Dec. 9	"	14	1275 "	1370 "	95 " gain	…………	June 25, "	6 m. 17 d.	
K_3	79	Goat	" 9	"	4	73 "	75 "	2 " "	…………	" 29, "	6 m. 21 d.	6 m. 21 d.
K_3	79	"	" 9	"	4	28 "	37 "	9 " "	…………	" 29, "	6 m. 21 d.	

TABLE II.—SHOWING VIRULENCE OF BOVINE CULTURE L.

Culture.	Age, days.	Animals	Date of inoculation.	Method of inoculation.	Dose in c.c.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
L_2	35	Guinea-pig	Dec. 22	Subcutaneous	1	330 gm.	210 gm.	120 gm. loss	Jan. 13, 1900	…………	22 days	26⅔ days
L_2	35	" "	" 22	"	1	424 "	240 "	184 " "	" 13, "	…………	22 "	
L_2	35	" "	" 22	"	1	286 "	246 "	40 " "	" 27, "	…………	36 "	
L_2	35	Rabbit	" 22	"	1	1720 "	1216 "	504 " "	Mar. 27, "	…………	95 "	96½ "
L_2	35	"	" 22	"	1	2100 "	1450 "	650 " "	" 30, "	…………	98 "	
L_2	35	Dog	" 22	Intrapulmonary	3	31 lbs.	30½ lbs.	1½ lbs. "	…………	Apr. 30, 1900	129 "	130 "
L_2	35	"	" 22	"	3	25½ "	27 "	1½ " gain	…………	May 2, "	131 "	
L_2	36	Goat	" 23	"	4½	83 "	73 "	10 " loss	Jan. 8, 1900	…………	16 "	

SHOWING VIRULENCE OF HUMAN CULTURE M.

Culture.	Age, days.	Animals	Date of inoculation.	Method of inoculation.	Dose in c.c.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
M_2	35	Guinea-pig	Dec. 22	Subcutaneous	1	350 gm.	260 gm.	90 gm. loss	Feb. 14, 1900	…………	54 days	34 days
M_2	35	" "	" 22	"	1	410 "	300 "	110 " "	Jan. 13, "	…………	22 "	
M_2	35	" "	" 22	"	1	300 "	216 "	84 " "	" 17, "	…………	26 "	
M_2	35	Rabbit	" 22	"	1	1620 "	1740 "	120 " gain	…………	May 25, 1900	154 "	154 "
M_2	35	"	" 22	"	1	1730 "	1930 "	200 " "	…………	" 25, "	154 "	
M_2	35	Dog	" 22	Intrapulmonary	3	29¼ lbs.	22 lbs.	7¼ lbs. loss	…………	Apr. 27, "	126 "	92½ "
M_2	35	"	" 22	"	3	21 "	18½ "	2½ " "	Feb. 19, 1900	…………	59 "	
M_2	36	Goat	" 23	"	4½	52 "	48 "	4 " "	…………	June 29, 1900	6 m. 6 d.	

TABLE III.—SHOWING VIRULENCE OF BOVINE CULTURE H AND HUMAN CULTURE K FOR RABBITS AND GUINEA-PIGS, AFTER RECOVERY FROM ORIGINAL ANIMAL.

Culture.	Recovered from	Age in days.	Animals.	Date of inoculation.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life.	Average.
H $(A)_3$	Goat	22	Guinea-pig	June 19	360 gm.	225 gm.	135 gm. loss	July 26	....	37 days	27⅓ days.
H $(A)_3$	“	22	“ “	“ 19	430 “	....	....	“ 13	....	24 “	
H $(A)_3$	“	22	“ “	“ 19	410 “	....	....	“ 10	....	21 “	
H $(B)_2$	Puppy	42	“ “	May 28	280 “	220 gm.	60 gm. loss	“ 2	....	35 “	28⅓ “
H $(B)_2$	“	42	“ “	“ 28	360 “	210 “	150 “ “	June 23	....	26 “	
H $(B)_2$	“	42	“ “	“ 28	260 “	184 “	76 “ “	“ 21	....	24 “	
H $(C)_2$	“	41	“ “	“ 28	310 “	210 “	100 “ “	July 2	....	35 “	40 “
H $(C)_2$	“	41	“ “	“ 28	295 “	210 “	85 “ “	June 29	....	32 “	
H $(C)_2$	“	41	“ “	“ 28	308 “	230 “	78 “ “	July 20	....	53 “	
H $(D)_2$	Hog	36	“ “	Aug. 4	562 “	380 “	182 “ “	Sept. 8	....	35 “	33 “
H $(D)_2$	“	36	“ “	“ 4	530 “	260 “	270 “ “	“ 7	....	34 “	
H $(D)_2$	“	36	“ “	“ 4	470 “	270 “	200 “ “	“ 8	....	30 “	
H $(E)_2$	Man (S.H.G.)	27	“ “	“ 2	460 “	260 “	200 “ “	Aug. 29	....	27 “	26⅓ “
H $(E)_2$	“ (S.H.G.)	27	“ “	“ 2	640 “	400 “	240 “ “	Sept. 3	....	32 “	
H $(E)_2$	“ (S.H.G.)	27	“ “	“ 2	536 “	370 “	166 “ “	Aug. 22	....	20 “	
H $(F)_2$	Hog	38	“ “	Sept. 13	610 “	370 “	240 “ “	Oct. 29	....	46 “	40 “
H $(F)_2$	“	38	“ “	“ 13	330 “	240 “	90 “ “	“ 22	....	39 “	
H $(F)_2$	“	38	“ “	“ 13	250 “	200 “	50 “ “	“ 18	....	35 “	
H $(A)_3$	Goat	22	Rabbit	June 19	2030 “	1680 “	350 “ “	July 18	....	29 “	53 “
H $(A)_3$	“	22	“	“ 19	1800 “	1380 “	420 “ “	Sept. 4	....	77 “	
H $(B)_2$	Puppy	42	“	May 28	1455 “	1390 “	65 “ “	Aug. 28	....	92 “	84½ “
H $(B)_2$	“	42	“	“ 28	1975 “	1180 “	795 “ “	“ 13	....	77 “	
H $(C)_2$	“	41	“	“ 28	1770 “	1050 “	720 “ “	“ 11	....	75 “	78½ “
H $(C)_2$	“	41	“	“ 28	1818 “	1270 “	548 “ “	“ 18	....	82 “	
H $(D)_2$	Hog	36	“	Aug. 4	....	9:0 “	....	Sept. 12	....	39 “	65 “
H $(D)_2$	“	36	“	“ 4	....	805 “	....	Nov. 3	....	91 “	
H $(E)_2$	Man (S.H.G.)	27	“	“ 2	2510 gm.	1626 “	884 gm. loss	Oct. 29	....	87 “	61½ “
H $(E)_2$	“ (S.H.G.)	27	“	“ 2	1870 “	1620 “	250 “ “	Sept. 7	....	36 “	
H $(F)_2$	Hog	38	“	Sept. 13	1530 “	1190 “	340 “ “	Nov. 12	....	60 “	63 “
H $(F)_2$	“	38	“	“ 13	840 “	940 “	100 “ gain	“ 18	....	66 “	
K $(B)_2$	Puppy	39	Guinea-pig	May 28	315 “	280 “	35 “ loss	Aug. 16	....	80 “	63 “
K $(B)_2$	“	39	“ “	“ 28	310 “	270 “	40 “ “	July 26	....	59 “	
K $(B)_2$	“	39	“ “	“ 28	330 “	240 “	90 “ “	“ 17	....	50 “	
K $(C)_2$	“	42	“ “	“ 29	380 “	220 “	160 “ “	“ 27	....	59 “	48 “
K $(C)_2$	“	42	“ “	“ 29	440 “	280 “	160 “ “	“ 18	....	50 “	
K $(C)_2$	“	42	“ “	“ 29	390 “	220 “	170 “ “	“ 8	....	35 “	
K $(D)_2$	Hog	29	“ “	Aug. 7	530 “	....	....	Sept. 8	....	32 “	29½ “
K $(D)_2$	“	29	“ “	“ 7	390 “	330 gm.	60 gm. loss	“ 8	....	27 “	
K $(E)_2$	“	38	“ “	Sept. 13	350 “	220 “	130 “ “	Oct. 16	....	33 “	82⅓ “
K $(E)_2$	“	38	“ “	“ 13	320 “	260 “	60 “ “	“ 9	....	26 “	
K $(E)_2$	“	38	“ “	“ 13	310 “	220 “	90 “ “	“ 21	....	38 “	
K $(B)_2$	Puppy	39	Rabbit	May 28	1445 “	1360 “	85 “ “	Aug. 28	....	92 “	104 “
K $(B)_2$	“	39	“	“ 28	1685 “	1610 “	75 “ “	Sept. 21	....	116 “	
K $(C)_2$	“	42	“	“ 29	1560 “	2010 “	450 “ gain	....	Oct. 4	128 “	128 “
K $(C)_2$	“	42	“	“ 29	1560 “	2610 “	1050 “ “	....	“ 4	128 “	
K $(D)_2$	Hog	21	“	Aug. 7	....	....	....	Oct. 1	....	55 “	71½ “
K $(D)_2$	“	21	“	“ 7	....	....	....	Nov. 3	....	88 “	
K $(E)_2$	“	38	“	Sept. 13	1260 gm.	1290 gm.	30 gm. gain	“ 3	....	51 “	62⅙ “
K $(E)_2$	“	38	“	“ 13	1050 “	855 “	195 “ loss	“ 26	....	74 “	

TABLE IV.—SHOWING VIRULENCE OF THE TUBERCLE BACILLUS FROM VARIOUS SOURCES FOR RABBITS AND GUINEA-PIGS.

Culture.		Age in days.	Animal.	Initial weight.	Weight at death.	Loss or gain in weight.	Date of inoculation	Died.	Killed.	Length of life.	Average.
J_6	Human	20	Guinea-pig	610 gm.	370 gm.	240 gm. loss	July 16	Sept. 24	....	77 days	79⅔ days.
J_6	"	20	" "	514 "	320 "	194 " "	" 16	Oct. 1	....	77 "	
J_6	"	20	" "	434 "	310 "	124 " "	" 16	" 16	....	92 "	
J_6	"	20	Rabbit	920 "	1450 "	530 " gain	" 16	....	Dec. 19	156 "	156 "
J_6	"	20	"	855 "	1470 "	615 " "	" 16	....	" 19	156 "	
I_6	"	32	Guinea-pig	695 "	510 "	185 " loss	" 16	Aug. 4	....	19 "	54⅓ "
I_6	"	32	" "	700 "	420 "	280 " "	" 16	Sept. 12	....	58 "	
I_6	"	32	" "	454 "	360 "	94 " "	" 16	Oct. 10	....	86 "	
I_6	"	32	Rabbit	900 "	1850 "	950 " gain	" 16	....	Dec. 19	156 "	
U_3	"	24	Guinea-pig	390 "	210 "	180 " loss	Jan. 14	Feb. 20	....	37 "	43 "
U_3	"	24	" "	360 "	290 "	70 " "	" 14	" 21	....	38 "	
U_3	"	24	" "	330 "	265 "	65 " "	" 14	Mar. 9	....	54 "	
U_3	"	24	Rabbit	1710 "	2040 "	330 " gain	" 14	....	June 15	152 "	152 "
U_3	"	24	"	1490 "	2130 "	640 " "	" 14	....	" 15	152 "	
W_3	"	19	Guinea-pig	745 "	....	....	....	....	....	....	All animals living at end of 60 days.
W_3	"	19	" "	780 "	....	....	....	....	....	....	
W_3	"	19	" "	700 "	....	....	....	....	....	....	
W_3	"	19	Rabbit	1470 "	....	....	....	....	....	....	
W_3	"	19	"	1750 "	....	....	....	....	....	....	
F_6	Bovine	23	Guinea-pig	404 "	320 gm.	84 gm. loss	Jan. 19	Sept. 7	....	50 days	39⅓ days.
F_6	"	23	" "	480 "	320 "	160 " "	" 19	Aug. 16	....	28 "	
F_6	"	23	" "	546 "	340 "	206 " "	" 19	" 28	....	40 "	
F_6	"	23	Rabbit	2350 "	1380 "	970 " "	" 19	Nov. 23	....	127 "	126½ "
F_6	"	23	"	910 "	670 "	240 " "	" 19	" 22	....	126 "	
Q_4	"	35	Guinea-pig	380 "	270 "	110 " "	" 19	Aug. 4	....	16 "	24⅔ "
Q_4	"	35	" "	510 "	420 "	90 " "	" 19	" 12	....	24 "	
Q_4	"	35	" "	800 "	560 "	240 " "	" 19	" 22	....	34 "	
Q_4	"	35	Rabbit	1580 "	980 "	600 " "	" 16	Oct. 13	....	86 "	79½ "
Q_4	"	35	"	895 "	875 "	20 " "	" 19	Sept. 30	....	73 "	
QQ_5	"	25	Guinea-pig	560 "	380 "	180 " "	Aug. 4	Aug. 22	....	18 "	24 "
QQ_5	"	25	" "	510 "	370 "	140 " "	" 4	Sept. 3	....	30 "	
QQ_5	"	25	Rabbit	1930 "	1500 "	430 " "	" 4	Oct. 17	....	74 "	
QQ_5	"	25	"	1340 "	1080 "	260 " "	" 4	Aug. 11	....	7 "	
T_3	"	35	Guinea-pig	390 "	290 "	100 " "	Sept. 11	Oct. 21	....	40 "	36⅓ "
T_3	"	35	" "	420 "	265 "	155 " "	" 11	" 10	....	29 "	
T_3	"	35	" "	455 "	340 "	115 " "	" 11	" 21	....	40 "	
T_3	"	35	Rabbit	1210 "	1090 "	120 " "	" 11	" 18	....	37 "	49½ "
T_3	"	35	"	1090 "	860 "	230 " "	" 11	Nov. 12	....	62 "	

TABLE V.—SHOWING RESULT OF INOCULATION OF ANIMALS WITH TUBERCULOUS MATERIAL FROM BOVINE AND HUMAN SOURCES.

Material.	Reference No.	Animals.	Date of inoculation.	Method of inoculation.	Dose in c.c.	Initial weight.	Weight at death.	Loss or gain in weight.	Died.	Killed.	Length of life, days.	Average days.
Bovine . .	9,838	Horse	July 14	Intrapulmonary	10	1205 lbs.	1010 lbs.	195 lbs. loss	Sept. 6	....	54	60
" . .	9,840	" [1]	July 30	"	10	1075 "	1015 "	60 " "	....	Nov. 14, 1899	66	
" . .	9,701	Pig	July 14	"	4	130 "	78 "	52 " "	Aug. 28	....	40	50¼
" . .	9,702	"	July 14	"	4	131 "	103 "	28 " "	Oct. 19	....	97	
" . .	9,708	" [1]	July 30	"	5	94 "	86 "	8 " "	Sept. 12	....	44	
" . .	9,706	" [1]	July 30	"	5	85 "	72 "	13 " "	Aug. 21	....	22	
" . .	9,697	Sheep	July 14	"	5	66 "	49 "	17 " "	" 27	....	41	88
" . .	9,906	" [1]	July 30	"	5	71 "	49 "	22 " "	" 31	....	32	
" . .	9,841	Dog	July 15	"	5	34½ "	24 "	10½ " "	Jan. 15, 1899	....	184	214½
" . .	8,010	" [1]	July 30	"	5	28 "	....	....	....	Mar. 20, 1899	245	
" . .	8,089	Cat	July 18	"	2.5	2508 gm.	1695 gm.	813 gm. loss	Aug. 18	....	31	25½
" . .	8,001	" [1]	July 30	"	5	1150 "	1043 "	107 " "	" 19	....	20	
Human . .	8,008	Horse	Aug. 27	"	10	1205 lbs.	1225 lbs.	20 lbs. gain	....	Mar. 14, 1899	199	183½
" . .	8,038	"	Sept. 27	"	10	1200 "	1370 "	170 " "	....	Mar. 14, "	168	
" . .	9,704	Pig	Aug. 27	"	5	80 "	100 "	20 " "	Dec. 9	....	104	58⅓
" . .	9,842	"	Aug. 27	"	5	91 "	91 "	....	Nov. 8	....	78	
" . .	9,844	" [2]	Nov. 9	"	5	70 "	71 "	1 lb. gain	Dec. 14	....	35	
" . .	8,095	" [3]	Dec. 14	"	5	....	193 "	....	....	Mar. 21, 1899	97	
" . .	9,705	" [2]	Nov. 9	"	5	87 lbs.	107 "	20 lbs. gain	Dec. 7	....	28	
" . .	8,094	" [4]	Dec. 7	"	5	....	....	....	" 20	....	13	
" . .	9,698	Sheep	Aug. 27	"	5	70 lbs.	74 lbs.	4 lbs. gain	....	Mar. 17, 1899	202	202
" . .	9,699	"	Aug. 27	"	5	58 "	79 "	21 " "	....	Mar. 17, "	202	
" . .	12,179	Dog	Sept. 8	"	5	55 "	28 "	27 " loss	....	Mar. 25, "	229	146
" . .	12,180	"	Aug. 27	"	5	29 "	32 "	3 " gain	Oct. 29	....	63	
" . .	10,023	Cat	Aug. 27	"	2.5	2190 gm.	....	....	Aug. 29	....		
" . .	10,060	"	Sept. 8	"	5	....	....	....	Mar. 20, 1899	....	193	
Human sputum	5,984	Calf	July 29	Intraperitoneally	10	108 gm.	258 lbs.	150 lbs. gain	....	Jan. 14, 1899	169	132½
" " .	8,499	"	July 29	"	10	181 "	265 "	134 " "	....	Jan. 14, "	169	
" " .	8,049	"	May 16	"	10	....	840 "	....	....	Aug. 1, 1898	77	
" " .	8,050	"	May 16	"	10	....	190 "	....	....	Aug. 1, "	77	
" " .	8,074	"	Oct. 18	Fed eleven times	30–60	224 gm.	385 "	161 lbs. gain	....	Feb. 18, 1899	123	
" " .	8,096	"	Oct. 18	" " "	30–60	230 "	850 "	120 " "	....	Feb. 18, "	123	
" . .	9,843	" [5]	Aug. 2	Intraperitoneally	20	108 "	....	....	....	Jan. 10, "	161	
" . .	9,846	" [6]	Aug. 2	"	20	132 "	....	....	....	Jan. 10, "	161	

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[1] These animals were inoculated with the tissues of guinea-pigs which had died of general tuberculosis due to inoculation with material from a tuberculous cow. This material was the same as that used for the inoculation of the other animals. [2] Inoculated from tissues of pig 9842. [3] Inoculated from tissues of pig 9844. [4] Inoculated from tissues of pig 9705. [5] Inoculated from tissues of calf 8049. [6] Inoculated from tissues of calf 8050.

2. The second part of the work has been the inoculation of animals with tuberculous material from man and cattle. The plan and methods are described in another section, while the results are given in Tables V. and VI. As a part of this experiment human tuberculous sputum has been fed to two calves, and four have been inoculated with the same material. These have been included in Table V. and described further on.

TABLE VI.—SHOWING COMPARATIVE EXTENT OF LESIONS PRODUCED BY INOCULATION OF HUMAN AND BOVINE MATERIAL.

	Bovine material direct.	Bovine material passed through guinea-pigs.	Human material direct.	Human material passed through other animals.
Horses	Extensive disease of thoracic cavity.	Extensive involvement of lungs.	One horse limited involvement of one lung; the other was normal throughout.	Rapidly fatal, very acute process confined mainly to lungs; slower process in one, confined to lung & pleura of one side.
Pigs	Extensive disease of thoracic cavity.	Extensive disease of thoracic cavity.	Extensive disease of thoracic cavity.	
Sheep	Extensive disease of thoracic cavity.	Extensive disease of thoracic cavity.	Limited involvement of one lung and pleura of same side in one animal; the other normal throughout.	
Dogs	Extensive disease of thoracic cavity.	Limited involvement of one lung.	Limited involvement of pleura and pericardium in one animal; in the other extensive disease of the thoracic cavity.	
Cats	Extensive disease of thoracic cavity and spleen.	Extensive disease of thoracic cavity and mesenteric glands.	Normal throughout.	

PART I.—ISOLATION AND STUDY OF PURE CULTURES FROM VARIOUS SOURCES IN MAN AND CATTLE.

Method of Isolating Pure Cultures. The isolation of cultures has been obtained by the method devised by Dr. Theobald Smith,[3] the principal features of which are: (1) The test-tubes, which are fitted with a cap like that of the well-known Miquel flask, ground on. The small tubulation in the cap is plugged with glass-wool. (2) The medium, which is dog's serum. The animal is bled with the strictest aseptic precautions, and the blood conducted to sterile jars through sterile rubber tubes. The serum is drawn off with pipettes and distributed at once into the test-tubes, put in the hardening oven, and coagulated at a low temperature (76° C.). Prepared in this way the serum needs no sterilization, and is much softer than when a higher temperature is employed. (3) The tubes are kept always inclined. (4) The tuberculous tissue selected for planting in our culture tubes is not crushed or rubbed over the surface, as advised in other methods. Young nodules from the omentum, spleen, liver, or a lymphatic gland are cut out, and a block of considerable size is placed on the surface of the serum. After remaining from two to three weeks in the incubator at 37.5° to 39° C. the tissue is pressed against the sides of the tubes with a stout platinum wire, and rubbed over the surface of the medium. Examination of the fluid squeezed out of the tissue at this time will generally indicate the final result. The tubes are replaced in the incubator, and within a week or ten days colonies of the tubercle bacillus usually appear. The nodules for inoculation of the tubes are best obtained from guinea-pigs, which are to be inoculated with the original matter from which we wish to obtain cultures. As soon as these show marked illness they are chloroformed and the cultures made. In general terms, the more recent the lesions the greater the chances of successful culture. As a rule, guinea-pigs can be killed in from three to four weeks after inoculation. If our material is of human origin the inoculation should be intraperitoneal; if bovine, subcutaneous inoculation will generally cause a sufficiently rapid involvement of the organs. (5) The incubator should contain a dish of water, to insure an abundance of moisture in the atmosphere. With the same object in view, it should be opened as seldom as possible.

The only modification of the above method in our work has been the addition of a 50 per cent. solution of glycerin in water to the serum in such proportion that the resulting mixture contains 5 per cent. of glycerin. This seems to make coagulation slightly more tardy; but the serum does not dry out as quickly, and the growth of the tubercle bacillus is facilitated. Serum prepared in this manner has been employed throughout for the cultures used in our inoculations.

Preparation of Cultures for Inoculation, and Dosage. The course of an experimental tuberculosis depends so largely on the number of bacilli introduced that exact dosage is an important factor in comparative work. Weighing naturally suggested itself, but a trial soon convinced us of its impracticability. The growth of human cultures is usually so abundant by the second generation that it is easy to obtain fairly dry masses which can be weighed quite accurately; but bovine cultures often grow very scantily for many generations as a thin film resembling ground glass. We have adopted as a uniform practice the method of Dr. Theobald

Smith—the use of a suspension of a given opacity. A portion of the growth is removed to the wall of a dry and sterile test-tube, and rubbed round and round with a glass rod until no lumps can be seen. Bouillon is then added, and after stirring thoroughly the mixture is allowed to stand quiet for two or three hours, so that the clumps may settle. The upper portion is poured off, and bouillon added until the suspension equals in turbidity a twenty-four-hour-old culture of the typhoid bacillus. The test culture is killed with formalin vapor and sealed, so that it can be used as a standard for a considerable time. Cover-glass preparations were made always as controls. In the tables below the generation of the cultures is indicated by the exponent, and the age of each culture is given in days in a separate column. For guinea-pigs and rabbits the dose has been throughout 1 c.c. of the suspension, introduced under the skin of the abdomen. For the other animals the dose and mode of inoculation are given in the tables.

Morphology and Cultural Characteristics of Bacilli Examined. The morphology of the bacilli in cultures of bovine origin is more uniform and constant than in cultures from man. The bovine bacilli are short, seldom more than 2 μ in length, and averaging less. In early generations many are seen which are oval, their length not more than double their breadth. They are thick and straight. They stain with carbol-fuchsin evenly and deeply, and beading is markedly absent, even in old cultures.

The human bacilli are, as a rule, much longer from the start, and tend to increase in length rapidly in sub-cultures. They are generally more or less curved, and some cultures contain many S-shaped forms, as culture M, noted below. They stain with carbol-fuchsin less deeply, and beading is a marked characteristic, often seen in the earliest growth.

These characteristics are most persistent in cultures on blood-serum. On glycerin-agar, glycerin-bouillon, and potato with glycerin the bacilli from the two sources approach each other in appearance and morphology much more closely.

The human cultures isolated have without exception grown more luxuriantly than the bovine cultures, though in at least two instances (cultures U and BB) the first growth was very long in appearing. This was due no doubt to their feeble virulence and consequent slow production of lesions in the tissues of guinea-pigs. A saprophytic life once established, they grew vigorously.

The bovine cultures are apt to grow as discrete colonies in the first culture, and for several generations are likely to grow as an exceedingly thin layer over a part of the medium, resembling closely ground glass.

The human bacillus can usually be induced to grow on glycerin-agar in sub-cultures made from the original growth on blood-serum. All attempts to obtain a like result with the bovine organism have failed.

Three of the bovine cultures examined have been isolated from milk. Two of these, L and Q, have shown throughout the characters of the type described as "bovine," while T approaches the human bacillus in morphology, being long and slender. It is, however, more virulent than any human culture tested.

Among the human cultures only one (M) has been isolated from sputum. Through the kindness of Dr. Alfred Hand, pathologist of the Children's Hospital, to whom we beg to make grateful acknowledgments, we have been able to obtain cultures from three cases of tuberculosis in young children in whom the intestine was involved. One of these, from which culture BB was isolated, was considered by Dr. Hand to be, "more clearly than any other he had ever seen, of intestinal origin," and was therefore studied with peculiar interest. Its pathogenicity has not yet been determined, but the course of the disease in the guinea-pigs inoculated to obtain the culture indicated a very feeble virulence, one living sixty-six and another ninety-six days. The bacilli, even in the first generation, are unusually long and thick. They stain deeply with carbol-fuchsin, but are beaded in a striking manner, the brightly stained portions being quite regularly disposed along the rod. They are most unlike what we have described as the bovine type in every way.

Cultures U and W, also from children with intestinal lesions, correspond to the human type in every particular, both as regards morphology and virulence.

COMPARISON OF CULTURES H (BOVINE) AND K (HUMAN). (TABLE I.)

History of Cultures. Culture H (bovine) was isolated from the mesenteric gland of a Jersey grade cow, about seven years old, which had been slaughtered for beef, but found to be extensively diseased and condemned. The lungs were the seat of an extensive and long-continued tuberculosis. Most of the foci had undergone caseation. The liver was involved also, but to a less extent. The gland from which the culture was obtained had undergone cheesy degeneration. On May 17, 1899, guinea-pigs were inoculated intraperitoneally with an emulsion made from the centre of this gland. On July 6th one pig was killed and cultures made on dog's serum. On July 28th the first growth was observed, and on August 18th sub-cultures were made from the omentum. Growth was fairly abundant. The bacilli were short, thick, straight, and stained evenly and deeply.

Culture K (human) was isolated from the lung of an adult negro man. The disease was not severe and was confined almost entirely to the lungs. Death was due to heart trouble. Guinea-pigs were inoculated intraperitoneally with an emulsion made from nodules taken from the lungs on June 10, 1899. On June 28th a pig was killed and cultures made on dog's serum. Growth was first observed on July 29th, the cultures from the spleen being used for sub-cultures, the first of which was made on August 18th. This culture grew rapidly and abundantly from the beginning. The bacilli were quite long, slender, and curved. They stained somewhat faintly, and showed a marked tendency to beading.

COMPARISON OF CULTURES L (BOVINE) AND M (HUMAN). (TABLE II.)

History of Cultures. Culture L (bovine) was obtained from the milk of a cow with tuberculosis of the udder. On May 22, 1899, a guinea-pig was inoculated with 10 c.c. of this milk. It died July 8th, and from it a second guinea-pig was inoculated intraperitoneally with an emulsion made from the spleen and omentum. On August 25th this pig was killed and two others inoculated intraperitoneally with an emulsion from the spleen and omentum. One of these was killed on September 18th and cultures made on dog's serum. On October 20th growth was first observed. On November 17th sub-cultures were made. The growth for several generations was very scanty. The bacilli were extremely short, many oval in shape. They took the stain evenly and deeply.

Culture M (human) was obtained from the sputum of a young adult female. Throat symptoms were most marked in this case. The disease was rapid and violent, death occurring in about five weeks after the sample of sputum was obtained. It contained large numbers of tubercle bacilli. On July 12, 1899, a guinea-pig was inoculated subcutaneously with the sputum. It was killed August 25th, and two pigs inoculated intraperitoneally with an emulsion made from the spleen and omentum. On September 18th a pig was killed and cultures made on dog's serum. Growth was first observed on October 15th, and sub-cultures were made on October 17th. Growth was rapid and abundant from the first, and the first transfers made from the original culture to glycerin-agar grew luxuriantly. The bacilli in the original culture were rather short, irregular in shape, many S-shaped, and, as a rule, stained quite evenly and deeply. In sub-cultures the bacilli soon became much longer, straighter, and showed beading.

Summary and Post-mortem Notes. It will be seen from the above tables that for each culture ten animals were used. Of the ten inoculated with culture H (bovine) nine died, while only one had to be killed, this being the horse; while of those inoculated with culture K (human) only three died, while seven had to be killed. With each of cultures L (bovine) and M (human) eight animals were inoculated. Of those inoculated with culture L six died and two were killed; while for culture M four died and four were killed. Taking the totals of these four cultures, eighteen animals were used for the bovine cultures and eighteen for the human. Of those inoculated with bovine tubercle bacillus fifteen died and three were killed; while of those inoculated with the human cultures seven died and eleven were killed. By making a closer study of the tables further differences in virulence between the bovine and human cultures may be brought out. All the guinea-pigs inoculated with those four cultures died, the extent of the post-mortem lesions being practically identical in all of them. Those inoculated with the human culture K lived almost ten days longer than those inoculated with the bovine culture H; while those inoculated with human culture M lived seven and one-third days longer than those inoculated with bovine culture L. All the rabbits inoculated with both of the human cultures had to be killed and showed no post-mortem lesions whatever, while those inoculated with the bovine cultures died, with extensive lesions. These lesions varied somewhat in the different animals, necrotic areas at the point of inoculation and complete involvement of the lungs being common to them all. The kidneys were also generally involved. Only one animal had generalized tuberculosis, involving the lungs, liver, kidneys, spleen, and omentum.

Dogs. The dogs showed a varying degree of susceptibility to all the cultures. Both of those inoculated with bovine culture H died, one in fifty-nine days, the other in sixty-six days. The smaller of the two had shown signs of illness for some days before death. The point of inoculation was well marked in the lung by a mass of tubercles 2.5 cm. in diameter. Both lungs were infiltrated throughout with gray nodules from 2 mm. to 4 mm. in diameter. Both pleural cavities contained a considerable amount of purulent effusion. The right pleura was roughened, without adhesions. The outer surface of the pericardium was thickly sown with minute nodules about 2 mm. in diameter, its interior being smooth. The liver was infiltrated throughout and necrotic, giving a nutmeg appearance. The right kidney contained a number of tubercular nodules ; the left was congested, but otherwise normal. The spleen had escaped infection. Through an accident no post-mortem was obtained of the other dog, but from his symptoms for some days before death it is reasonably certain that the disease was general, affecting particularly, perhaps, the lungs. Both of the dogs inoculated with human culture K had to be killed, the lesions in both being insignificant. In one the only marked change which could be found corresponded to the point of inoculation in the lung, where a small excavation was found almost completely filled in with scar tissue, radiating from the centre in star shape. Scrapings from cut surfaces of this area revealed the presence of tubercle bacilli. All other organs were entirely normal. In the other dog the point of inoculation was marked by a large nodule in the pleural surface of the lung. The surfaces of both lungs showed a great number of minute nodules. Scrapings from cut surfaces revealed tubercle bacilli in small numbers. On the external surface of the pericardium was a nodule, about one inch in diameter, which contained calcareous foci, incapsulated in dense fibrous material. The mediastinal glands were enlarged and contained a number of caseous foci. In all other respects the animal seemed normal.

Horses. A marked difference was noted in the effect of the cultures on the horses. The horse inoculated with bovine culture H showed no ill effects from the injection for some months after the injection. In the latter part of March, nearly four months after the injection, some emaciation could be noted, and the respirations were quickened, being on an average of twenty-two a minute and somewhat labored. On the first of April the temperature averaged 102.2° F. The symptoms grew very slightly more marked, and on June 25th, six months and a half after inoculation, the animal was killed. It had lost forty pounds in weight, though its condition was still fair. The costal pleuræ were extensively covered with masses of nodules of from 2 mm. to 18 mm.

in diameter, averaging nearly 12 mm. in thickness. These growths were somewhat more extensive on the left side than on the right, and tended to be more isolated and somewhat larger in size. The lungs were a grayish-pink, the bloodvessels being plainly outlined in a delicate network over the surface. They were covered with nodules, varying from 1 mm. up to 6 mm. of an inch in size, and closely packed. Both lungs were hard, dense, and devoid of elasticity, having much the feel of liver. At the point of inoculation on the right lung a small depression was found, filled in with a star-shaped cicatrix. This cicatricial tissue was surrounded with a nodule about 2.5 cm. in diameter, containing cheesy areas and much fibrous tissue. In the posterior part of the left lung a tubercular abscess about 2.5 cm. in diameter was found, and in the bottom of the lung several similar in size and character were seen. The bronchial glands were enlarged to twice their normal size, but showed no caseation. The surface of the pericardium was studded with minute nodules. The thoracic surface of the diaphragm was covered over a large portion of its surface with nodules the size of a pea, some of them pedunculated. Among the nodules were many shreds of fibrin, some of them 2.5 cm. in length. Similar masses were seen also on the costal surface of the lung. The liver, spleen, and kidneys appeared normal.

The horse inoculated with human culture K showed no clinical evidence of injury. The first of April its respiration was twelve a minute; its temperature was 100.5° F. It was killed on June 25th, about six months and a half after inoculation. Its condition was good. It had gained ninety-five pounds in weight. There was considerable fat subcutaneously and about the abdominal organs. All of the abdominal organs were entirely normal, with the exception of the liver, on the surface of which many fringes of fibrin were found. In the thoracic cavity both pleuræ were smooth and shiny, except at the point of inoculation on the right side, where a mass of small nodules with fringes of fibrin were seen. At the point of inoculation in the right lung was a cheesy abscess 4 cm. in diameter, and incapsulated with dense fibrous tissue, the walls being 6 mm. thick. Otherwise, the lung was entirely normal. In the left lung were three small tuberculous nodules about 12mm. in diameter, situated near the surface, and which had undergone caseation. The disease was evidently non-progressive, and was probably retrogressive.

Goats. Both the goats inoculated with bovine culture H died, one in twenty-two days and the other in twenty-six days, the lesions being much the same in both. There was thickening of the pleuræ and adhesion at the point of inoculation; otherwise they were normal. The lungs were covered with myriads of minute tubercles about 1 mm. in diameter, which gave a gritty feel to them. In the substance of the lung no tubercles could be found. The cut surfaces presented a pneumonic appearance, most marked in the smaller of the two animals. Scrapings from cut surfaces in any portion of the lung revealed enormous numbers of tubercle bacilli. The mucous in the bronchial tubes throughout the lungs also contained large numbers of tubercle bacilli. In the larger animal the liver, spleen, kidneys, peritoneum, and diaphragm were normal. The animal lost eighteen pounds in weight in the twenty-two days of its life after inoculation. The smaller goat showed involvement of the abdominal organs also. The omentum was studded with pearly tubercles 2mm. in diameter, one of which had undergone caseation. The surface of the spleen was thickly covered with tubercles 1 mm. in diameter. In the substance of the spleen no nodules could be found, but scrapings from cut surfaces showed a large number of tubercle bacilli. The liver showed no macroscopical tubercles, but scrapings from cut surfaces were rich in bacilli, and in sections under the microscope tubercles were seen, with a few giant cells. Microscopical examination of the lungs, however, revealed no tubercles. The infection in this animal was diffuse, and it is considered as a case of tubercular septicæmia.

Both of the goats inoculated with human culture K gained in weight and were killed after six months and twenty-one days. Both were in good condition, having a considerable amount of fat in the subcutaneous tissues and around the abdominal organs. In the larger animal at the point of inoculation there was an area of adhesion to the pleura about 8 mm. in diameter. On the surface of the left lung were two or three nodules about 3 mm. in diameter which had undergone caseation. This lung is attached at its lower edge to the diaphragm by fringes of fibrin, and along this edge a few nodules about 12 mm. in diameter and containing cheesy pus were found. The entire surface of the left lung was covered with fringes of fibrin of a reddish-pink color. In both lungs the elasticity was preserved, and neither revealed nodules either by palpation or on section. The left pleura was covered with a network of fibrin similar to that seen in the lung; the right was normal. The mediastinal glands were much enlarged and calcareous. In the liver two small nodules were found near the surface, the organ being otherwise normal. In the smaller animal the omentum contained upward of a hundred nodules from 2 to 12 mm. in diameter. The left lung was attached to the pleura at its edge by numerous bands of fibrin and at its posterior surface to the diaphragm in the same manner. Along the lower border were a number of nodules about 6 mm. in diameter which had undergone caseation. The right lung was normal. The mediastinal glands were enlarged and calcareous. The left pleura shows ten or twelve nodules 6 mm. in diameter, which are cheesy; besides a large one, corresponding to the point of inoculation. The diaphragm is attached to the spleen and to the stomach by bands of fibrin, but no nodules were found. The liver was normal; the portal glands were enlarged and contained many cheesy nodules. The left kidney contained a number of cheesy nodules. The right kidney was normal. The mesenteric glands were enlarged and several of them contained calcareous areas.

(To be continued.)

TEXAS FEVER IN NATIVE SOUTH CAROLINA CATTLE.[1]

By G. E. Nesom, D.V.M.,
COLLEGE EXPERIMENT STATION, AND STATE VETERINARIAN.

STATES, like professional men, tend to specialize; but often make sudden and radical changes. The "Palmetto State" has, during its history, specialized in war, indigo, rice, tobacco, nullification, cotton, secession, and the last and most successful is cotton manufactures. However, at no time in its history has South Carolina ever seriously claimed to be a stock-raising State. Possibly there are at present within its borders a score of men who breed high-class Jerseys for sale, half as many who breed Ayrshires, and still less numbers who have small herds of Devons, Holsteins, and Guernseys.

I have been in every county of the State, and have seen only two small herds of Shorthorns, two of Red Polls, and not a single Hereford or Polled Angus. So, while South Carolina cannot be classed as a stock-raising State in the past or at present, it must be said to her credit that many attempts have been made to introduce better cattle, but acclimation fever has promptly claimed most strangers in the herd, and the project has been practically abandoned. It should be remembered in this connection that the whole of the State from its earliest history has been infested with the common cattle tick; in fact, the history of Texas fever began in South Carolina more than a hundred years ago. For a century it has been produced by cattle from South Carolina[1] when driven into several States further north, and it is likewise known to occur in cattle from Tennessee and the mountainous portions of North Carolina and South Carolina when driven down to middle and lower South Carolina. When John C. Calhoun lived on the historic "Fort Hill" plantation he was very careful not to bring down from the mountains during the summer any cattle purchased there. A friend once wrote him from Tennessee, presenting him with a fine bull, and Mr. Calhoun replied very hastily, thanking him for the remembrance, and also suggested that he keep the bull until winter, when he could be safely sent over without danger of contracting "mountain distemper," a term now known to mean Texas fever. This suggests that in Calhoun's day a large portion of the Piedmont section was free from ticks. Cattle raised there were not immune to Texas fever, and, when exposed to ticks, succumbed to it as readily as they do now. Although the Government quarantine line runs entirely above South Carolina, much of this State is now entirely free from ticks. This result has followed the enactment of a stock law some twenty years ago. Prior to that time the fields were not fenced and stock allowed to run at large. Under this system ticks were widely disseminated every year. Since then stock has been kept up, and many an old citizen has told me that ticks disappeared in certain places soon after the stock law went into effect. The process has gone steadily on ever since, and each year sees many a farm entirely freed from ticks. This is most noticeable in the mountainous portions of the State, and the ticks at present increase in prevalence as we go toward the Atlantic coast. Notwithstanding this general conclusion, there are many farms all over the State which are and have been for several years entirely free from ticks.

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[1] Read at the Thirty-eighth Annual Meeting of the American Veterinary Medical Association, Atlantic City, N. J., September, 1901.

Now, since we know that the tick is the common agent in the transmission of Texas fever, we must assume that cattle bred on the tick-free farms of South Carolina are as much subject to this disease as if bred in New Jersey. This may be stating the proposition a little too strong, but it must stand until further investigations are made and other means of transmission more satisfactorily demonstrated.

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[1] See Annual Report of the Bureau of Animal Industry for 1899, p. 85.

If stock-feeders buy indiscriminately cattle free from ticks and those infested, the non-immunes will readily pick up a supply of ticks when the entire purchase is pastured and fed together. In the vicinity of cotton-seed oil mills, where native cattle are fed for market, such transactions take place many times during each year, and the loss resulting is considerable.

A few examples from personal observation in my experience as State Veterinarian may serve to illustrate this fact.

In the fall of 1898 a stock-feeder at Winnsboro, just north of Columbia, bought several carloads of native cattle from the surrounding country. One purchase consisted of sixteen head driven down from upper Fairfield and lower Union counties, where ticks are not common. These were put into his pastures and feed-lots along with other purchases carrying ticks. They began dying of Texas fever in fifteen days, and in twenty-five days thirteen of the sixteen were dead.

A son-in-law of this same man lived on a tick-infested farm just outside of Winnsboro. He had lost several head in the same way, and not being an ardent believer in the "tick theory" decided to test its merits. He brought in from tick-free farms two Jersey bulls and put them into his pasture. Both soon became covered with ticks and died in a few days.

A farmer and merchant at Fairplay had extensive Bermuda pastures along the Tugaloo River. In the summer of 1900 he bought in Anderson and Oconee counties, South Carolina, and on the Georgia side of the river, about fifty head of cattle for grazing. Most of those from the South Carolina side were free from ticks, but the Georgia cattle were well sprinkled. As a result the South Carolina cattle contracted Texas fever, and before the summer was over he had lost about one-third of the herd.

The Orr Cotton Mill Company at Anderson fenced about forty acres of slashy land near the mill and gave it as a common pasture for the family cows of the mill hands. These people came in from the surrounding country, some bringing with them tick-infested and some tick-free cattle. In 1900 the pasture became badly infested, and early in September of that year Texas fever appeared. Practically all of the non-immunes died.

A prominent dairyman, whose farm is two and a half miles from the town of Sumter, bought during the winter of 1900–1901 a number of milch cows in Columbia and Sumter. Most of these were raised in town and had never carried ticks. They were placed in his wooded pastures, where ticks are very numerous. About the middle of June, 1901, four or five of these cows died. I was requested to come to the farm at once. On arriving I found that the proprietor was away, and the only symptoms observed by the negroes who attended the cattle were weakness and bloody urine. I proceeded to the pasture and found several more of the newly purchased cattle showing signs of the disease. Rectal temperatures were 104° to 107° F. None of the cattle raised on the farm was affected.

Many other similar examples might be mentioned, but these are sufficient to illustrate the effect on trade in cattle.

Soon after undertaking the work of State veterinarian of South Carolina, in the fall of 1898, I began to receive reports from a few places telling of the losses of cattle from some unknown disease; but no inspections were made until the summer of 1899, when I had a number of reports and requests for inspections. Several trips were made to places along the foot of the mountains, where tick-free and tick-infested farms are almost equally divided, and in each case the deadly malady proved to be Texas fever. But I had much difficulty in convincing the farmers that ticks were responsible for the trouble. The principal arguments used against my diagnosis were statements made in Bulletin No. 26 of the South Carolina Experiment Station, issued in September, 1896, by Dr. W. E. A. Wyman, the former veterinarian of the station. The article referred to constitutes the second part of the bulletin, and is headed "Hæmoglobinuria; Red Water." From it the following extracts are made:

"The various outbreaks of hæmoglobinuria so far investigated by me within the last two years characterize it as a disease attacking the mucous membranes of the stomach, intestines, and urinary organs, with excretion of urine more or less bloody or smoky in color. Invariably I have found that animals taken down with red water had been pastured on low meadows, or there had been low spots in the otherwise more elevated pastures. As a rule, these pastures had a little branch running through them, the banks of which were lined with alder, sumach, bottonwood, oak, and other astringent and irritant plants. These pastures show here and there clumps of shade trees, with pale-looking grass underneath them. So far all outbreaks noted begin eight days to five weeks after the weather in early summer has grown hot and dry. At this time the cattle rest the greater part of the day in the shady spots, browsing on the oak and eating the sickly looking grasses growing underneath the shade trees, actually destroying the foliage and leaving the bare twigs of the various trees and shrubs mentioned above." . . . "The disease is most frequently seen in June and in the fall of the year. Cattle of all ages and conditions are subject to it, while those roughing it all the year round in those pastures are not so readily taken sick, probably from the fact that they are accustomed to the particular food." . . . "Cattle well cared for and suddenly put out on these pastures are more readily attacked." . . . "The food these animals eat (in the pastures) contain some poisonous substance, which is taken up into the blood from the stomach or intestines." . . . "It seems that the peculiar poison taken into the body by the food on entering the blood current breaks down the red blood cells, setting the coloring-matter of these cells free. The blood thus altered reaches the kidneys, which are the great filters of the body, taking out of the blood most of the injurious substances, and in this instance the coloring-matter is filtered out and appears in the urine, giving it the smoky color. The actual nature of the poison concerned in this disease is not yet understood, nor has the Veterinary Department of the South Carolina Experiment Station finished its investigations in regard to this disease."

"Depending on the amount of noxious food eaten, the animal will show more or less symptoms at a variable period." . . . "Some of them, though only slightly diseased, will lie down continually, while the very sick ones divide their time between standing up and resting. All animals immediately give the impression of being very weak, their walk is unsteady, they lose flesh rapidly, and the eye sinks into the head; they no longer chew the cud, they are constipated; pregnant cows slip their calves and seldom recover." . . . "Cows attacked by this disease usually die in three to eight days after they are taken sick." . . . "The muscles have a faint red or yellowish color; the milt, or spleen, is a little larger than usual; kidneys are of ordinary size, showing on section a reddish-brown appearance. The bladder is either filled with dark red urine, or when empty a sediment of a brownish tint is seen." . . . "The gall-bladder is distended with a rather thick bile." . . .

"The first thing that owners usually notice is that the cattle do not come up, or somebody finds a sick or a dead one, and on looking into the trouble others will be found needing attention." . . . "The mucous membrane of the eye or vagina is of a pale or yellowish color." . . . "The pulse beats 70 to 120 per minute." . . . "The temperature runs between 103° to 107° F." . . .

"All pastures known to cause red water are made reasonably safe by either fencing in all shady places or by removing the shade trees in some other way. The same holds good of the shrubs and trees lining the banks of the branches running through these pastures. Hay raised in such meadows is to be fed sparingly, while cattle which have been stall-fed all winter are better given some other food, as millet, barley, green corn, etc, when first put on these pastures."

You can readily see that where a man has thoroughly imbibed these ideas it is hard to induce him to protect his cattle against ticks. At first I tried to collect some statistics regarding the cattle industry of the State and losses from disease, by taking notes where inspections were made; but this method was slow and ineffectual. In the fall of 1900 I acted as cattle inspector of the State Fair, held in Columbia. All tick-free cattle were carefully separated from those carrying ticks. About two hundred head were exhibited, and they were about equally divided between the tick-free and tick-infested. The State Fair Association has a membership of about five hundred, and on returning home I sent to each a copy of the following circular letter:

Circular of Inquiry Regarding Texas Fever in Cattle.

OFFICE OF THE VETERINARIAN OF THE SOUTH CAROLINA EXPERIMENT STATION,
CLEMSON AGRICULTURAL COLLEGE.

DEAR SIR: This circular letter is sent you in the hope that you will assist the veterinarian of the Experiment Station in securing some information regarding the cattle disease known as Texas fever.

During the past few years this disease has been prevalent in many sections of the State, but since the passage of the present stock law it has become very common, especially in the up-country in the pastures and pens of stock buyers and feeders.

Texas fever is known by a number of names, but the more important of these are splenic fever, splenetic fever, acclimation fever, Southern cattle fever, tick fever, red water, bloody murrain, bloody urine, distemper, mountain distemper, and many local names.

The symptoms are readily recognized by anyone who has seen cattle suffering from this fever. At first the animal becomes stupid, and leaves the herd for some secluded and shady part of the pasture. They appear listless and droop, as if all energy had forsaken them, the ears drop, the nose is more or less dry, rumination (chewing cud) is suspended, the urine light to dark red in color, and constipation marked. Only small quantities of very dark dung are voided. They are highly fevered, the temperature running from 103° to 107° F. In milch cows the flow of milk is almost suspended. All of the symptoms increase in severity until the animals become almost or quite unconscious, walk around in a circle, and seem to suffer great pain; then convulsions set in, the animal falls, lies on the side, unconscious, and snorting in the intervals between convulsions, until death ensues.

Calves rarely develop the severe symptoms or die from the disease; but in cattle over a year old the death-rate is possibly 50 to 90 per cent., increasing as the age increases.

Post-mortem examination of the carcass shows the flesh to be almost bloodless and pale in color, the spleen (melt) black and easily torn, the bladder filled with bloody urine, the liver and intestines yellowish, and the gall-bladder filled with bile.

In all cases an examination of the skin about the thighs, flanks, neck, and other parts of the body reveals the presence of ticks, which always go with Texas fever. The cause of the disease is a small animal organism (protozoan), which seems at all times to exist in the body of the tick. When the tick inserts its bill through the hide these little germs (?) gain access to the blood of the cow, and there develop, producing a case of Texas fever in ten to twenty days. Death results from the destruction of the red blood cells, the refuse going to the spleen and the coloring-matter to the bladder.

Cattle which have had ticks on them when they were calves are immune to this disease and will not have it again; cattle which have not had ticks on them until a year old will develop the disease as soon as they get the ticks on them.

The Experiment Station officials desire to assist the stockmen of the State in getting this disease under control and preventing serious losses in future. Inoculation experiments are now in progress, and it is hoped that immunity to it may be produced by artificial means.

You are requested to answer the questions on the inclosed postal card and return as soon as possible to the Veterinarian, who wishes to thank you in advance for your co-operation in the matter.

Yours truly,
G. E. Nesom,
Veterinarian.

The postal card sent was as follows:

NOTICE: Please answer the following questions:

Name, P. O., S. C.
How many head of cattle have you on hand?
How many of these were raised on your farm?
Number bought in 1900 Number sold in 1900
Did your cattle have ticks on them in 1900?
If not, how long since they have had?
Have any of your cattle had Texas fever?
If so, how many? How many died?
Are ticks common on the cattle of your section?
Give names and addresses of the largest stock-owners in your section.

Only about 10 per cent. of these cards were returned filled out, but they came from twenty-four of the forty counties, and represented every section of the State. From them the following statistics are taken:

Counties.	No. reports.	No. reported.	Tick free.	Infected.
Abbeville	1	26	00	26
Anderson	2	123	123	
Beaufort	1	14	14	
Barnwell	1	13	13	
Charleston	2	67	17	50
Chester	5	138	138	
Darlington	4	124	90	30
Edgefield	1	19	19	
Fairfield	4	180	97	83
Florence	1	25	25	
Greenville	3	14	14	
Greenwood	4	118	118	
Hampton	2	13	13	
Kershaw	1	12	12	
Laurens	3	58	16	42
Marion	3	208	18	190
Marlboro	3	22	20	2
Newberry	3	32	21	11
Oconee	4	89	89	
Orangeburg	2	29	29	
Pickens	2	45	45	
Richland	13	554	175	379
Spartanburg	1	3	3	
York	4	151	66	85
Totals	70	2077	1175	898

From the above figures you see that these men report 55.6 per cent. of their cattle free from ticks, while 34 per cent. are infested. The number of deaths in 1900 from Texas fever among these 2077 head was 55, or 2.5 per cent. From personal observation I am sure this is quite a low estimate. The number and value of cattle in South Carolina[1] for the year 1898 was:

126,762 milch cows, valued at $16.75 each .	$2,123,264
141,509 other cattle, valued at $9.45 each .	1,337,399
Total value of all cattle	$3,460,663
Annual loss from Texas fever, 2.65 per cent. .	91,767

I have publicly stated on several occasions that I believe the annual loss from this disease in South Carolina is $10,000. I am now fully convinced that I could have made it $50,000 with perfect safety; but the actual loss is not reducible to figures, and the general conclusion is that the stock-owners of South Carolina have a very important problem to handle. They are "between the devil and the deep blue sea"—neither with nor without cattle ticks. The breeder in the upper country cannot sell his cattle to men in the low country, nor can he bring the tick-infested cattle of the low country to his tick-free farm. On the other hand, the low country man loses practically all cattle purchased from the mountainous portions. Either transaction causes both immediate financial loss and injury to the business interests of breeders. The result is that the cattle business is in a measure paralyzed. The number and value of cattle decreases every year. At the same time our cities and towns are rapidly becoming manufacturing centres, and the farms are being drained of white labor, which goes to the cotton mills, where they cease to be producers of food; consequently there is an ever-increasing demand for milk, butter, and beef. How are these demands to be met?

The answer must come from intelligence, energy, and business enterprise. The State must be separated into two divisions, the upper portion entirely freed from ticks and the lower portion rigidly quarantined. Better blood must be introduced, and inoculation persistently practised on foundation stock for the permanently infested section. Those farms in the low country, which must by virtue of environment be surrounded by tick-infested farms for many years, although they are now free from ticks, should be at once reinfested, in order that the cattle bred there may not be subject to Texas fever. This is not a step backward, but a necessary precaution.

The abandoned cotton fields must be converted into verdant pastures, meadows stocked with the choicest grasses adapted to this section, and modern dairying methods introduced; then the lowing herd will bring peace, plenty, and happiness to the home of the Palmetto farmer.

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[1] See Annual Report of the Bureau of Animal Industry for 1899.

THE ATTITUDE OF THE FARMER TOWARD THE TUBERCULIN TEST.[1]

By Carl W. Gay, D.V.M.,
Ames, Iowa.

The subject of this paper is broad, and one upon which considerable has been written; but it is not my intention to enter upon a discussion of the arguments pro and con regarding the tuberculin test. The idea is simply to impress more forcibly the importance of the proper education of the farmer as a means toward eradicating tuberculosis from dairy herds, and to call particular attention to the responsibility of the veterinarian as a factor in the accomplishment of this end. In a paper read before the last annual meeting of the Interstate Association Live-stock Sanitary Boards, Dr. Dalrymple has so cleverly worded the thought which I wish to express that I quote him here, viz.:

"I think that it may be truthfully asserted that the success of all great reforms is largely dependent upon the education of public opinion, ignorance being the mighty retarding factor to the advancement of all progressive movements.

"Scientific progress has been but slow, since the struggle has been for ages against the enormous odds of incredulity, indifference, and superstition. Truth, however, must prevail; and scientific investigation, which is but the searching after truth, although hampered on all sides by those untoward influences which are born of ignorance, superstition, and doubt, is slowly but surely revealing the true nature of things, and must eventually and effectually succeed. Still the rate of progress in the accomplishments of the desired ends will greatly depend upon the acceptance of the revealed truths by the people, which can be satisfactorily attained only through an educated public opinion."

While all the efforts of veterinary sanitarians have been influenced to a greater or less degree by these conditions of incredulity, indifference, and superstition, the opposition seems to have been directed more particularly at their efforts to eradicate tuberculosis from dairy herds; hence, I believe a brief consideration of some of the reasons for this opposition and our ability to overcome it to be in order at this meeting. Some experience in the practical application of the test by direction of the New York State Board of Health has given me occasion to appreciate, sometimes quite keenly, the attitude of the majority of the farmers toward this work. Inasmuch as all classes of farmers, from the city individual who maintains his country-place simply as a source of recreation to the poor tenant farmer who even rents his cows, were dealt with, their opinions may be taken as representing the position of the farmers generally on this matter.

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[1] Presented at the Thirty-eighth Annual Convention of the American Veterinary Medical Association, Atlantic City, N. J., September, 1901.

It is not for me to outline or recommend any course to be adopted as a means of altering the present condition of things, but I venture a few suggestions for your discussion.

To eventually exterminate tuberculosis in cattle from any of our States without the hearty co-operation of the farmer-owners is a task the enormity of which can only be realized by those who have come in intimate contact with the opposing forces. To secure their co-operation we must gain their confidence. To do this it is necessary to overcome their prejudice, and the easiest way to accomplish this is by rational, conservative methods, and, above all, to instruct them in the nature of the disease, its cause, and lesions. A clear explanation of how the disease is transmitted from animal to animal, perpetuated in stables, and the channels through which it is liable to be introduced into sound herds and non-infected premises, will do much toward bringing the owner to see the necessity of such measures as are proposed for its control. To direct all our efforts toward the simple destruction of all tuberculous animals in a given district is like treating disease without removing the cause; and its effect is just as transient. If, however, while we are doing away with the diseased cattle we are posting the owners regarding our work and its relation to the livestock interest of the commonwealth as well as to the public health, we have established a permanent vigilance committee, in whose presence it will be exceedingly difficult for the disease again to get the upper hand, and by whose efforts its ultimate extinction is sure to come.

To consider briefly the reason for this opposition on the part of the farmers: It is easy for us to understand why a man objects to having his cattle, which he has raised and possibly prizes highly, and upon which he is dependent for a livelihood, condemned as diseased and destroyed when they are apparently in good health and physical condition; and it is natural that these owners, in protection of their own interests, should consider and act upon the statements published in the various agricultural papers and purporting to be reliable and authoritative. Nevertheless, it is highly amusing to note how readily a theory in one of our agricultural journals—which, by the way, seem eager enough to give publicity to these oftentimes sensational statements—is accepted as authoritative. They have more weight with the majority of farmers than the very conclusive evidence of modern research can be made to have on this question. It would seem that men of no professional or scientific prestige whatever have only to advance some theory in opposition to modern views regarding tuberculosis in cattle to spring at once into prominence and be quoted as an authority by cattlemen far and wide. Not long since I had a talk with a member of the firm which a few years ago was foremost among the breeders of Holstein cattle in this country, having owned Pauline Paul, the champion milk and butter cow of the world. To-day this firm is out of business, and it has been intimated that the dispersal of their cattle was due to the existence of tuberculosis in their herd. Whether that was the case or not I could not say, but the disease was known to be present among their animals. As illustrative of the views held by many men prominent in cattle affairs, and who should know better, I will repeat in substance what he said. He was bitterly opposed to the work, and pronounced it as all wrong. He did not propose to have cattle representing hundreds of dollars to him condemned by a test that was not infallible, and be post-mortemed to have only the minutest kernel held up by the veterinarian in charge as the only evidence of the existence of the disease and responsible for the reaction. Furthermore, he believed the test harmful to healthy cattle. He had asked a local physician who had been active in the State control of tuberculosis in cattle if he would care to subject his child to an injection of tuberculin. The doctor replied that he did not know that he would care to inject his child, whereupon the gentleman in question declared that he would not subject his cattle to a treatment which the M.D. did not deem advisable to give to his child. In speaking of another firm in the same city who are getting a fancy price for their milk on account of their cattle having been tuberculin tested and the milk handled in a hygienic manner, he said he not only condemned their policy, but absolutely refused to allow their milk to be used in his family, as coming from cows having been injected with tuberculin. These remarks from an intelligent man—a college graduate and an agriculturist of the first order—would obviously work havoc among the cattle breeders of the country should he choose to make them public, as perhaps he has. It would seem that he is laboring under a delusion, not having seen things in their true light. Did he and his colleagues comprehend the true state of affairs as we know them to exist, they must be open to conviction. Could they be made to associate the condition in which the only lesions were primary foci in glands appearing simply as minute nodules with the other extreme, in which the lungs and liver are a mass of abscesses, perhaps, and the pleuræ, peritoneum, and viscera studded with countless masses of well-formed tubercles, their opinions would undoubtedly be altered. The impunity with which healthy animals may be injected with tuberculin, as demonstrated time and again by careful and complete experiments, should relieve their anxiety in this respect.

It is a deplorable fact that many of the statements responsible for the present attitude of the stock-owners toward the tuberculin test have come from men claiming allegiance to our profession. If they are true to their convictions, as we hope they are, a little educational work would be applicable to them; but if, as in some cases I fear, they are soliciting popular favor and increased sales of certain proprietary remedies the case is the more to be deplored.

The tuberculin test has been condemned and resolutions against it adopted by the National Shorthorn Breeders' Association. This will prove a formidable obstacle to the work of eliminating this disease from cattle.

But the latest, and probably the severest blow we as sanitarians have received is the paper read by Dr. Koch before the British Congress of Tuberculosis. Koch is very positive in his claim that intertransmissibility from cattle to man is impossible, although so far as we know his investigations have only verified those of Dr. Theobald Smith, of Harvard, who showed that bovine and human tubercle bacilli have different morphological and cultural characters and differ in their pathogenesis to experimental animals. However, we may expect to be brought up against that statement at every turn for the next decade. People will not stop to consider that the presiding officer, as soon as Dr. Koch was seated, cautioned those present to be very conservative in their acceptance of Koch's theory; also that those in attendance at the meeting and the medical profession generally were almost as a unit in refusing to accept the theory of this one man as contradicting their own experience and investigations of many eminent scientists the world over. The fact that while pulmonary tuberculosis in human beings has decreased nearly 50 per cent. in the last half-century, intestinal tuberculosis in infants under one year has increased 27 per cent., is significant. Every physician has encountered cases of tubercular meningitis and enteritis in infants on milk diet, furnishing the strongest circumstantial evidence of the transmissibility from cattle to man. We must remember also that Koch is a laboratory worker and in no sense a clinician. It is only a few years since this same man startled the scientific world by claiming to have discovered a therapeutic agent in tuberculin, which we know to-day only as a diagnostic. It is with all due respect to this truly great investigator that we say he has erred once, and we trust time will disprove his latest theory, as it did his claim for tuberculin. But the harm has been done; Koch's words have been widely circulated and enthusiastically received by those eager for some new barrier to be placed in the way of modern sanitary reform. It remains for us to be prepared to meet the opposition thus reinforced as best we may.

I have already tried to show that much of the influence responsible for the present antagonistic attitude of the farmers toward this test has been exerted by agricultural papers and those regarded as authority in stock affairs. Theoretically, perhaps, our first efforts at reconciliation should be directed toward these sources; but practically we can do infinite good among the farmers themselves. First and foremost I would advocate, as I have said before, having all owners present at post-mortems, and giving them as good a demonstration of the lesions as possible. I believe great results can be derived from advertising and holding public post-mortems when it can be done without affecting the interest of the owners. True, you may encounter cases in which the lesions are such that it would be difficult to make the owner believe that anything is wrong; but there are usually others in which the lesions are so marked as to call forth exclamations of disgust and approval of the work from the bystanders; then is the time to point out how readily the disease may advance from the first stage to the last without, in many cases, any physical symptoms—how animals harboring the disease in an occult form may transmit it to other more susceptible animals in the acute form, and so be a source of infection for the whole herd. There is a prevailing opinion among the laity that an animal cannot be tuberculous and possess sound lungs; hence it is advisable before opening a carcass to describe all the lesions which are characteristic, and then give your audience to understand that you may find any or all of them present. Do not let them entertain the notion that the little greenish nodules of the œsophagostomun columbianum are tuberculous ulcers of the intestine, or they will insist that there is nothing in it, as nearly every animal killed possesses these nodules.

It strikes me that, when possible, the destruction of the condemned animals should be at some abattoir or under such conditions that if the lesions were found localized, and not injurious to the food value of the carcass, it might be allowed to go on the market, as is done by the Federal inspectors under direction of the Bureau of Animal Industry. In this way the State would be saved an indemnity, and the owner would get better value for his cattle. This procedure would undoubtedly meet with favor from the owners, and could in no way affect the results we are striving to attain. At any rate, it is most essential that the owner should be present at the killing, and see just what condition his cattle are in when he had believed them sound; seeing is believing, and it is especially true in this instance. People will read about these diseased conditions and look at highly colored diagrams, but nothing has as much weight with them as a good look at the real thing. I have a case in mind where a number of herds in one locality were tested and a large per cent. condemned. The owners were of the very poorest class of tenant farmers, and to say that they were opposed to the test when first approached regarding it would be putting it mildly. They objected so strongly as to threaten violence. The condemned cattle were killed and examined before quite an aggregation of owners, neighbors, and villagers, and no sooner had the first carcass been opened than they were unanimous in expressing satisfaction in the work. While they had demurred at first, they were now enthusiastic. If you were to visit that locality to-day you would find the people better posted on tuberculosis in cattle than many persons who profess to be veterinarians, and they are enthusiastic over the State control work. They will not buy cows unless they can do so subject to the test; they have found a better market for their dairy products since their herds have a clean bill of health, and a decided advantage over their neighbors who have not had their cattle tested. One man who had been most active in opposing the work informed me that the sentiment in the village nearest by had become so strong since my first visit some months before that people came five miles from his place to buy milk for church sociables, etc., because they knew the cows he had left were sound. This fact was very gratifying to him and to myself. This same man came to me with his brother and most sincerely apologized for some remarks they had made regarding this work upon my first visit. They assured me that they had objected upon general principles, as they had been misinformed, but realized now that we were in the right, and they only hoped that the good work would go on. I might cite several other instances similar to this as demonstrating what may be done in an educational way at the same time we are destroying the diseased animals. The influence of a number of such incidents as this must mean a great deal not alone as a local benefit, but as a power for good in our Legislatures.

Another phase of this work which I believe should be laid before the farmers for their consideration is the economic importance of tuberculosis in cattle. Even though Koch's latest theory be accepted universally, and the relation of tuberculosis in cattle to public health completely ignored, we have a problem in economics worthy of all the attention this work now receives. Here, again, we have this same incredulity, indifference, and superstition blinding the farmers to the fact that they are abusing their own interests by hushing this thing up and allowing the disease to gnaw at the vitals of their herds without raising a finger to check it. For instance, I condemned and killed fifteen out of twenty-one head in one of the richest dairy districts in New York State, and that owner told me he had been losing a cow or two every year from tuberculosis, having turned them off for bologna stock for whatever he could get out of them. This farmer said he had known the disease to be prevalent in his locality for years. He was sure that it existed in his son's herd, near by, and said that one of his neighbors every year had drawn two or three head of tuberculous animals back on a hill on his place, until at present this hill was strewn with skeletons and carcasses of animals, representing a large amount of money; still these men could not be prevailed upon to take any measures to exterminate a disease which was every year costing them a large percentage of the proceeds of their dairies.

It may seem superfluous to mention, but it is nevertheless essential, that we as operators in the application of this tuberculin test should be exceedingly careful of our technique and manipulations. Abscesses resulting from infection at the time of injection, or any of the sequelæ which may follow careless methods, are charged by the owners to the evils of tuberculin on healthy animals, and are to be carefully avoided.

From a review of the different methods in vogue in the different countries and States for the eradication of tuberculosis, this one fact is indorsed, viz.: In the country or State having obtained the greatest results in this line—as, perhaps, Denmark, for instance—we find the stock-owners themselves in possession of a good, practical understanding of the disease and the measures taken to oppose it. They have consequently indorsed and supported the Federal and municipal authorities in their endeavors to stamp it out.

In conclusion, I would emphasize that the ultimate extermination of tuberculosis in dairy cattle is to be attained, first, by proper disposal of all tuberculous animals—either by slaughter or quarantine—and, second, by a properly educated public opinion regarding this work.

THE X-RAY AS AN AID IN THE DIAGNOSIS OF TUBERCULOSIS IN CATTLE.[1]

By J. V. Laddey, D.V.S.,
Arlington, N. J.

The very slow, and in some respects often impractical, way of examining cattle for tuberculosis by means of the tuberculin test has led me to experiment with the X-ray as to the feasibility of detecting the disease in the living animal. I arrived at satisfactory results. The infiltrated calcareous matter, which it seems exists already in the early stages of tubercular lesions, prevents the X-ray from passing through the lesions, thus causing a shadow or opacity. After the successful fluoroscopic test I decided first to have radiographs made, to ascertain whether it would be practical to go to the trouble of experimenting on the living animal. Being compelled to take expense into consideration, I chose specimens not with a view to obtain impressive pictures, but to put the idea to a severe test. Accordingly, I selected lesions with small tubercles in the early stages, as in Plates Nos. 3 and 4, arguing that if disadvantageous specimens showed satisfactory results, the better developed cases would be less penetrable to the rays, and therefore more evident. It is obvious from the photographs that if an enlarged tubercular mediastinal gland were to be radiographed its shadow would be as dense as that thrown by compact bone tissue.

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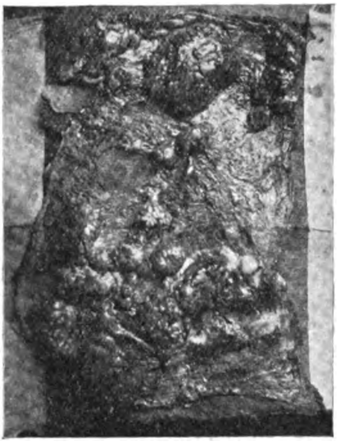
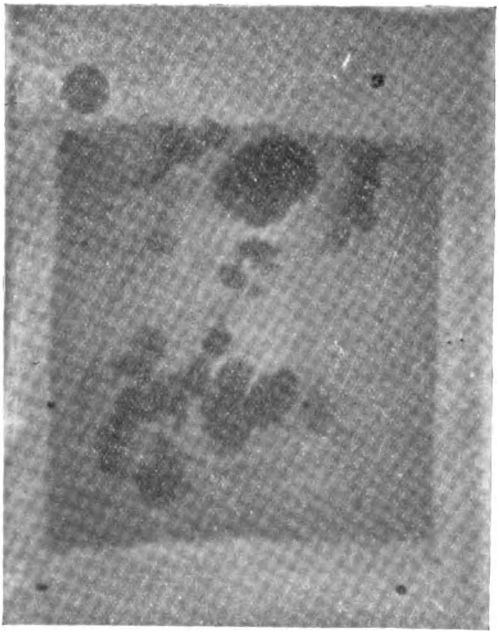
[1] Read before the New Jersey Veterinary Medical Association, at Trenton, January 9, 1902.

Photograph and Radiograph No. 1 present a portion of a pleura spread on cardboard, with tubercular tumors. In the upper left-hand corner is the radiograph of a dime exposed simultaneously with the specimen, to show the comparative opacity of coin and tumors.



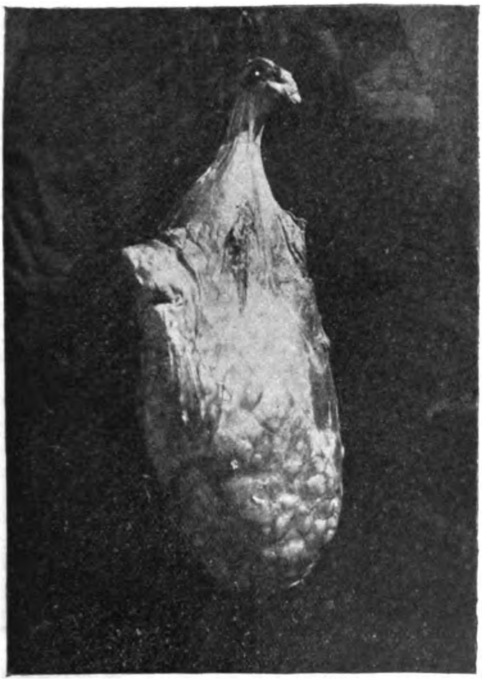
Photograph No. 1.—Portion of pleura, with tubercles spread on cardboard.



Radiograph No. 1.—Portion of pleura, with tubercles spreadon cardboard.

Photograph and Radiograph No. 2 show a tubercular abscess of the lung which is still in the semi-solid, cheesy stage, but which, nevertheless, throws quite a dense shadow.

Photograph and Radiograph No. 3 represent a portion of the diaphragmatic peritoneum, with tubercular lesions in the early stage, when they have a transparent, grayish-pink, rounded, and granular appearance; but even here upon exposure to the rays there is sufficient calcareous matter present to cast a shadow.



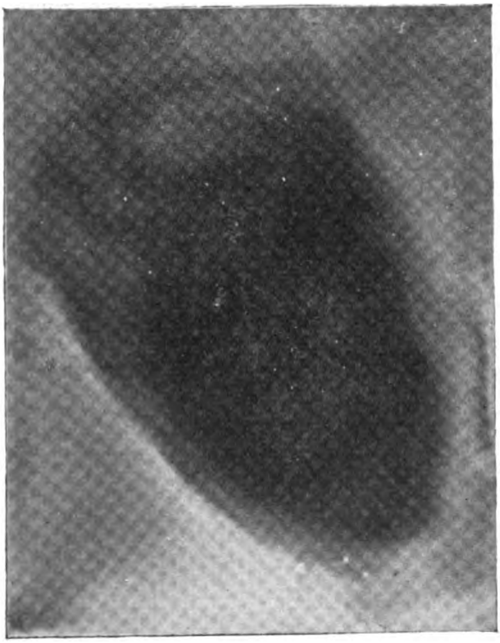
Photograph No. 2.—Tubercular abscess of lung.

Photograph and Radiograph No. 4 present a portion of the thoracic wall, with lesions also not far advanced. It also shows the relative density of the shadow cast by the portion of the rib and the tubercular deposits.

The radiographs showing such satisfactory results, I proceeded to make arrangements for a fluoroscopic examination on the living animal. The examination was made in a dark booth erected for the purpose, with a twelve-plate static machine to generate the electrical current. The examination was made on both sides of the animal. An assistant manipulated the "Crookes tube" on one side of the animal, so as to have it directly opposite the fluoroscope through which the cow was examined on the opposite side.

For the first examination the subjects were four thin cows, which were selected because they were thought to be of a tubercular diathesis. The observations through the fluoroscope were as follows:

Cow No. 1. The fluoroscope view on both sides showed a few undefined opacities in the posterior portion of the thorax.



Radiograph No. 2.—Tubercular abscess of lung (cheesy stage).

Cow No. 2. Here the fluoroscopic view presented more and somewhat smaller, but less sharply defined, shadows distributed over the entire thorax.

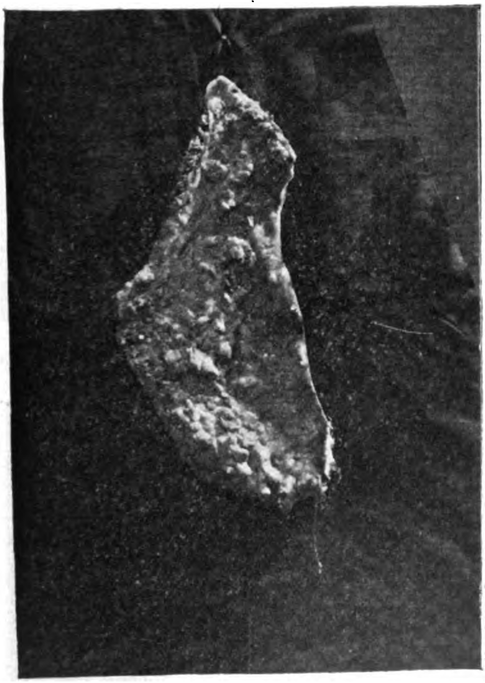
Cow No. 3. This presented a similar view, with an exceptionally dark spot in region of liver.

Cow No. 4. Showed a clean, unobstructed view, so clear that it enabled me to see the heart in action very distinctly.

My conclusions were that Cows Nos. 1, 2, and 3 would prove to be tuberculous and Cow No. 4 free from tuberculosis. The subjects were then killed and inspected by myself and another inspector of the Bureau of Animal Industry who had purposely not been informed of my conclusions. The post-mortem report is as follows :

In Cow No. 1 the mediastinal glands and the posterior portion of the caudal lobe of the lungs showed tubercular areas.

In Cow No. 2 there existed generalized tuberculosis; there were tubercular lesions in the lungs, liver, and over the entire pleura, but the lesions were small.

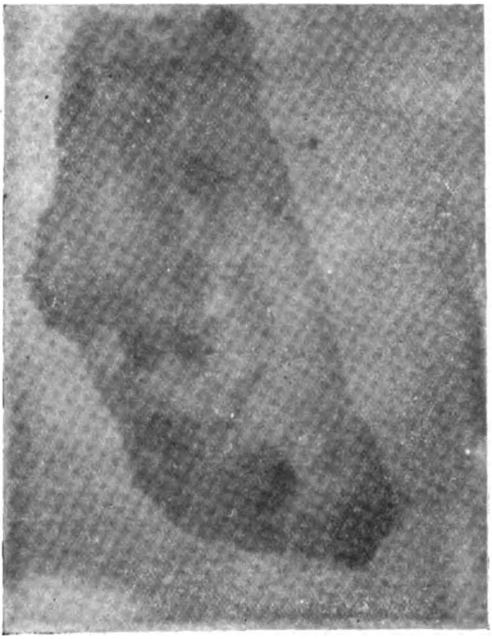


Photograph No. 3.—Portion of diaphragmatic peritoneum, with tubercular lesions.

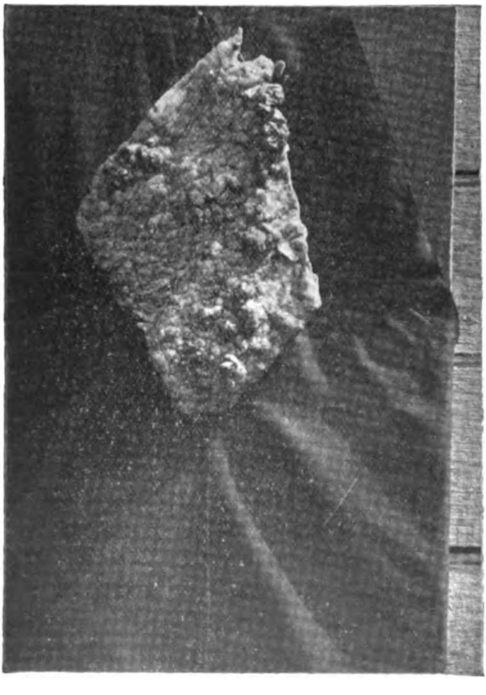
Cow No. 3 showed tuberculosis of lungs and liver. In this case the lesions existed to the largest extent, and especially so in the liver.

Cow No. 4 was entirely free from tuberculosis.

For a second experiment the subjects numbered three. They were good cows, in good condition, supposed to be healthy, considerably fatter than those of the first experiment. Here I observed that adipose tissue does not decrease the penetrability of the rays. Upon fluoroscopic examination I judged Cows Nos. 2 and 3 to be free from tuberculosis, but in Cow No. 1, I noticed a faint

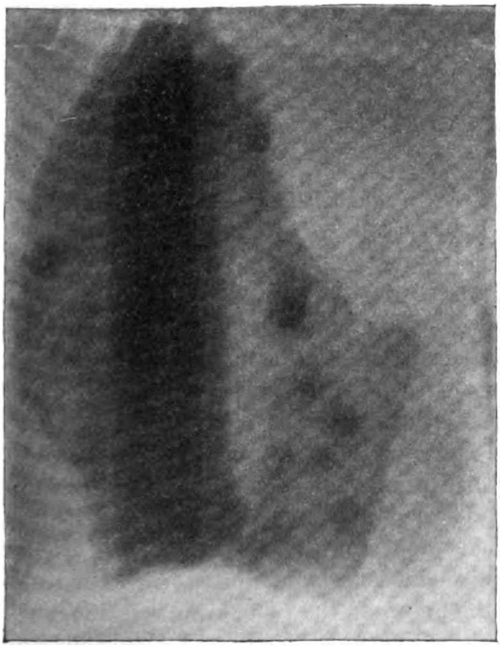


Radiograph No 3.—Portion of diaphragmatic peritoneum, with tubercular lesions.



Photograph No. 4.—Portion of thoracic wall (with rib), with tubercular lesions in the early stage.

opacity near the posterior extremity of the left caudal lobe, and concluded that there might be a slight tubercular deposit in that region, although the shadow was not so pronounced as in those cases of the first test which were found to be tuberculous. Upon post-mortem examination Cows Nos. 2 and 3 were found to be free from tuberculosis; and Cow No. 1 showed, in the very spot where I had detected the shadow, instead of tubercular deposits, lesions of a chronic, circumscribed pleuritic inflammation, with adhesions. The fact that even an indurated serous membrane throws a shadow somewhat different from shadows of other anatomical parts demonstrates the possibilities that might be attained by this method. This latter test taught me also that fluoroscopy is an art of no small importance, in which one can only become proficient through practice. I noticed in this test that I was much better able to discern the different shadows, as of the heart, ribs, liver, etc., than in the previous one; and although a case of tuberculosis in its earliest stages, where there is not a sufficiently appreciable calca-



Radiograph No. 4.—Portion of thoracic wall (with rib), with tubercular lesions not far advanced.

reous infiltration present, might escape detection by examination, with the X-ray in the living animal an advanced case could not escape detection.

As this mode of diagnosis consumes only from two to four minutes for an animal, at the utmost, it would recommend itself not only for ordinary diagnostic purposes, but particularly in antemortem work for meat-inspection purposes. It would also be of great value in diagnosing cases of tuberculosis far advanced where the tuberculin test has failed to cause reaction. Furthermore, it could be put to practical use in studying the age and progress of tubercular lesions in the living animal.

PROGRESS IN VETERINARY MEDICINE IN ITS RELATION TO PUBLIC HEALTH.[1]

BY WILLIAM HERBERT LOWE, D.V.S.,
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PRESIDENT OF THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

THE progress made in veterinary medicine in its relation to hygiene, as well as in many other respects, during the last few years has been constant and amazing, and shows that the two great branches of medical science—human and animal—are inseparable. This fact, I believe, is recognized by scientists the world over. The leading veterinary colleges of America are no longer independent institutions, but have become departments of great universities. Cornell and the University of Pennsylvania have each a veterinary department, and the New York University has recently established a veterinary department. This department is the result of the union of the two oldest veterinary colleges in this country, viz. : the New York College of Veterinary Surgeons with the American Veterinary College and the adoption of the consolidated institution as a school of the New York University, under the title of the New York-American Veterinary College.

Comparative anatomy, comparative physiology, comparative pathology, bacteriology, entomology, animal parasites and parasitism, chemistry, physics, meat- and milk-inspection, and sanitary science are among the subjects found in the curricula of the recognized veterinary schools of to-day. Harvey's discovery of the action of the heart and the circulation of the blood by experiments made upon living animals, and Jenner's discovery of vaccination and the announcement that smallpox might be prevented by inoculation with the virus of cowpox, are well-known examples of the inestimable value to mankind of a scientific study of animal life in connection with experimentation. In fact, it might be said that it was by the student entering the domain of comparative or veterinary medicine that many of the now known scientific facts were discovered and demonstrated; and as many of the diseases of animals are transmissible to man, the subject assumes an importance of no small proportion when considered from the stand-point of hygiene or public health. Well, indeed, may the New Jersey Sanitary Association give consideration to this subject.

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[1] A paper read before the New Jersey Sanitary Association at Lakewood, December 7, 1901.

By investigations and experiments conducted by veterinarians in Texas fever of cattle it was found that cattle in the infected district carried in their blood the contagion of Texas fever; that it was due to a protozoan organism, *pyrosoma bigeminum*, analogous to the parasite of human malaria, and that the parasite was transferred to susceptible cattle outside the infected district by the Southern cattle tick, *boophilis bovis*. The experiments alluded to are interesting to the scientific investigator, and make a remarkable chapter in the progress of medical science. They have already led to extensive studies of the part played by insects in the propagation of human diseases, and particularly malarial fevers, opening up a new field in medical research by which it was discovered that mosquitoes are responsible for spreading malaria.

No fact has drawn a closer relation between animal and human diseases or the protection of the public health through domestic animals than the introduction of the antitoxin principles of serum-therapy. The immunizing of animals against fatal contagious diseases; the rapid and certain diagnosis of latent diseases, which cannot be known by physical symptoms, and their early isolation before they have spread their disease germs among their kind and to the human family; the cure of some diseases by the administration of repeated doses of attenuated virus, and the prevention of development of disease by their early administration, are phases of veterinary science which make it a great preserver of the public health. Contemplate for a moment the importance of tuberculin used for the diagnosis of tuberculosis in dairy cattle; mallein used for the diagnosis of latent glanders in the horse; vaccine employed to protect mankind from smallpox; tetanus antitoxin employed in the treatment of lockjaw; diphtheria antitoxin employed in the treatment of diphtheria, as well as other antitoxins employed in the treatment of anthrax, rabies, and other diseases. It is impossible to estimate the value of animal serums to mankind employed for diagnostic, prophylactic, and therapeutic purposes.

The position taken by Professor Koch in the recent British Congress on Tuberculosis has awakened a great deal of interest in the question of the transmissibility of the tubercle bacillus from animal to man and from man to animal. The experiments showing the difficulty or the impossibility of transmitting human tuberculosis to cattle in a fatal form cannot be accepted as evidence that the bovine bacillus, which is far more virulent and fatal for many animals, cannot infect man. On the contrary, the greater disease-producing power of the bovine bacillus would appear to make it more dangerous for human beings as well as for lower animals. The evidence showing the practical impossibility of cattle being infected with human tuberculosis under ordinary conditions is a great encouragement for the eradication of bovine tuberculosis, since it proves that the danger, so often feared, that cattle if freed from the disease would be immediately reinfected from mankind, does not exist in fact, and need not be considered. Even if it were true that bovine tuberculosis is not communicable to man, it would nevertheless be to the interest of cattle and swine growers to have the disease eradicated as an economic measure; and such eradication would also be to the interest of the public, since it would have great effect as a means of preserving the food-supply of the nation and of protecting consumers from the unwholesome products of diseased animals.

The communicability of tuberculosis received its full share of attention at the recent annual meeting of the American Veterinary Medical Association, held at Atlantic City last September, and resolutions were adopted expressing the sense of the Association as above. I might state that a number of veterinarians are making a series of experiments at the present time that promise to be of no little value to science and mankind. Some of these experiments, I am glad to say, are being made in our own State by the Public Health Committee of the Veterinary Medical Association of New Jersey.

The last Legislature enacted a pure food law, and put the execution of the law under the control of the State Board of Health; and I hope that ample provision is made in said law for necessary veterinary inspection of all food animals as well as animal food products. The qualified veterinarian is the expert on this subject. This Association can do much to enlighten the general public on veterinary hygiene and sanitation, and I regard the same as an important function of this organization.

All dairies should be regularly inspected by a competent veterinarian. The cattle should be examined as to their health, and the attendants as to their own healthfulness and cleanliness; the stables should have sufficient air space, be well lighted, ventilated, and drained; the quantity and kind of food is important, and the water-supply should be uncontaminated. Milk is often tainted, contaminated, or infected after it is drawn from the cow. The whole system of producing, handling, and marketing milk is being revolutionized, and great improvement has already been made in many dairies by enterprising producers. Milk is pure while in the udder of a healthy cow, but the moment exposed, impurities soon deteriorate it. It should be conveyed to the milk-house as soon as drawn. Care must be taken that the water is not polluted in which the milk cans and utensils are washed, for it is in this way that epidemics of typhoid are sometimes started. No dairyman should give medicine to a cow and allow the milk to be used, especially for children. The use of various preparations of mercury, arsenic, zinc, iron, iodine, purgative and other medicines easily cause fatal results.

I am of the opinion that practitioners of human medicine might in certain maladies of their patients, especially of children, administer medicine to their patients through the agency of a cow by her milk.

The importance of meat-inspection is becoming more evident every day. A layman or butcher is not qualified to do work of this character. It requires the services of the veterinary expert. The danger is not so much from meat of an inferior quality, or even from putrid meat, as it is from fresh meat containing micro-organisms of communicable diseases. Certain parasites (*cysticercus cellulosæ* and *C. bovis*) are directly transmissible to man through the use of meat. The veterinarian with a knowledge of these worms is able to prevent the spread of their tapeworm stage among human beings by condemning the diseased meat or subjecting it to processes which will render it harmless. The rigid system of meat-inspection in Germany has resulted in an actual decrease in tapeworm disease (by *tænia solium* and probably also by *T. saginata*) in man and in the frequency of *C. cellulosæ* in the human eye.

Condemnation and destruction of organs infected with certain other parasites (*echinococcus*, *cœnurus*, *cysticercus tenuicollis*) will prevent the spread of those parasites in their tapeworm stage to dogs, and by that means prevent the reinfection of man (by *echinococcus*) and of domesticated animals (by *echinococcus*, *cœnurus*, *cysticercus tenuicollis*). In this case prevention of tapeworm disease in dogs, though of comparatively little importance so far as the dogs are concerned, becomes very important not only in public hygiene (in the prevention of disease in man and animals), but also from an economical stand-point, preventing financial loss to stock-raisers from disease and death in their herds and flocks caused by these worms. The destruction of livers heavily infected with flukes will also result indirectly in decreasing fluke diseases in man and animals. I would refer those interested to an exhaustive work on the subject compiled by the Bureau of Animal Industry, some of the data of which I have incorporated in this paper.

Pork before being put on the market should be examined microscopically for a minute worm called *trichina spiralis*, which causes the disease known as trichinosis. As a secondary precaution no pork should be eaten unless it has been thoroughly cooked throughout, so as to kill any parasites which may exist in it. The pernicious and most unsanitary practice of feeding swine with garbage should be prohibited, as it induces disease in that animal whose carcass constitutes a large portion of our food resources.

Cold storage, cooking, or salting will destroy the parasites of certain diseases. In other cases the meat should be "tanked" and converted into fertilizer. In each city and town the slaughtering should all be done at one abattoir, and that abattoir should be constructed upon sanitary principles. There should be a competent veterinary inspector appointed as director in every slaughter-house, with assistants if necessary.

Veterinary inspection of meat is now being efficiently carried out on a large scale for interstate and foreign trade by the United States Bureau of Animal Industry. Meat-inspection should be carried out along the same lines by every city and town in New Jersey. The State, and every city and township board of health, should have at least one veterinarian officially connected with it. Veterinarians should be appointed on boards of health as well as physicians and others, for no small part of preventive medicine and sanitary science belong essentially to the veterinary profession.

I take a deep interest in this Association, because it brings together members of several professions interested in a common cause.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF M. P. RAVENEL, M.D., AND S. J. J. HARGER, V.M.D., OF PHILADELPHIA, PA.

MEDIAN NEURECTOMY AND FLEXOR TENOTOMY FOR KNUCKLING. Breton describes three degrees of knuckling: *First degree,* when the first phalanx has not been displaced beyond the vertical; *second degree,* when a perpendicular tangent to the anterior face of the fetlock strikes the hoof; *third degree,* when this perpendicular falls in front of the hoof.

After speaking of the recurrence of knuckling after tenotomy, the sensibility of the cicatrix, and a recurrence of the lameness the author supplements section of the tendon with median neurectomy. The suppression of the sensibility does not seem to interfere with the normal cicatrization of the tendinous wound.

Operation. The foot being properly dressed, a shoe with long heel and a long toe-piece with the end curved upward is applied. The subject is cast upon the diseased side and the median nerve resected; he is then turned over and the tendons are cut. The two wounds cicatrize normally and the position of the bones often becomes normal at once. At the end of fifteen days a thin-heeled shoe is applied, and in six weeks a cure is effected. The perforans alone is severed. This treatment is not infallible, but it has given many good results. Perfect results have been obtained in knuckling of the third degree, even when both legs were affected; also, with or without morbid changes accompanying the contraction of the tendons. Asepsis and other surgical directions must be observed.—*Rec. de Med. Vet.*

OPERATIVE MODIFICATION IN NEURECTOMY. After the nerve has been isolated, Bessange recommends its section with a heated metallic blade instead of the bistoury. The blade of the zoo-cautery can be used for this purpose. The author claims that this procedure produces a complete asepsis of the end of the stumps, that the sensibility of the foot from union of the stumps is not so apt to recur, and neuromata are not so frequent. These results are claimed from observation of many cases.—*Rec. de Med. Vet.*

ABSCESS OF THE PLEURA. The animal, while backing, fell on its side upon a sharp piece of iron, making a lacerated wound 3 to 4 centimetres long on the middle of the side of the chest, between the seventh and eighth ribs. When seen by Pousselet, eighteen days after the accident, the wound was of a fistulous character, discharging a clear, grumous pus on extirpation. A blister had been applied upon both sides of the chest. There was dulness on percussion around the seat of injury, but beyond this area there was normal resonance. Puncture with the trocar revealed the absence of pleuritic exudation.

The fistula was enlarged and curetted, allowing the escape of a quantity of grumous pus, and injected with bichloride and trikresol. A drainage-tube was inserted, but was soon displaced. At the end of a month the wound was again enlarged to about 10 cm., and a pint of infectious pus escaped: the hand was introduced into the cavity to clean out the fibrinous exudation. Inflammatory adhesions had formed between the visceral and parietal pleura, which protected the pleural cavity from infection through the cavity of the abscess and prevented the communication of the former with he atmosphere. Bichloride irrigation was employed for about fifteen minutes after the operation, the cavity was filled with cotton and iodoformed ether, and a bandage applied. The wound eventually entirely closed, leaving only a cicatrix. Constitutional symptoms were at no time marked.—*Rec. de Med. Vet.*

OSTEITIS OF FOUNDER. Since the investigations of Lesbre, which indicate that founder is an osteitis circumscribed to the antero-inferior part of the os pedis, Jacoulet, Joly, Vivien, and Liénaux confirm the real existence of an osteitis with osteophytes. In a horse which was destroyed forty-eight hours after the beginning of the attack, examination showed that the osteitis is extensive; that the entire bone may be involved, even the lateral cartilage and the navicular bone.

In cases of insidious founder primarily chronic or subacute (Jacoulet) osteitis is often the initial stage, although it cannot be said without reserve that such is always the case. This would be precisely opposed to the view, heretofore generally accepted, that the podophyllous tissue is the essential seat of the disease. The latter view, considering the sensibility and the vascularity of the lamina, would offer a better explanation for those acute cases which manifest themselves very suddenly. To harmonize these two views requires further observation.—*Ann. de Med. Vet.*

OBSERVATIONS UPON CRYPTORCHIDISM. Sabot reports the following results of 101 cases : Double abdominal, 11 ; unilateral abdominal, 79 ; double inguinal, 3 ; unilateral inguinal, 8.

Cryptorchidism is most frequent in the left side. The testicle, which is of variable volume, shows, as a rule, no degeneration. Three times serous or sebaceous cysts were found. In five cases the testicle could not be found, and in two of these the autopsy showed the absence of a testicle on account of a malformation of the internal genital organs. Four cases died from the effects of the operation—2 hernia and 2 peritonitis.

It will be seen that abdominal cryptorchidism is more frequent than the inguinal form.—*Rev. Vet.*

SYNOVIAL CYST OF THE KNEE IN THE HORSE. The radio-carpal synovial membrane sometimes forms a synovial tumor above the supracarpal bone, between the external border of the radius and the tendon of the external flexor of the metacarpus. Lesbre treated one of these with the classical iodine method. The articular cavity was emptied with the capillary trocar and the iodine injected. A few hours after the operation the region became hot, painful, and tumefied. In forty-eight hours resolution commenced and was complete in fifteen days.—*Jour. de Med. Vet. et de Zoötechnie.*

TREATMENT OF HÆMOGLOBINURIA (AZOTURIA). As soon as the diagnosis is made, Kas administers 400 to 500 grammes of bromide of potassium in distilled water and bleeds from the jugular vein ; 10 centigrammes of sulphate of eserine are given hypodermically. The animal is then rubbed with a stimulating liniment, such as camphorated alcohol, and the hind-quarters are covered with cold compresses, over which several woollen blankets are placed. The bladder is catheterized and the rectum emptied. In grave cases a second dose of the bromide is given the next day. The patient is never placed in slings before the third day. Out of sixteen cases this treatment was successful in fifteen.—*Ann. de Med. Vet.*

FREQUENCY OF TUMORS IN THE HORSE. Observation upon 5000 horses presented at the Berlin clinic from 1895 to 1901 showed, according to Fröhner, 150 cases of tumors, as follows: Sarcoma, 41 (28 per cent.); bothryomycosis, 30 (20 per cent.); fibroma, 20 (13 per cent.); carcinoma, 20 (13 per cent.); keloids, 8 (5 per cent.); keraphyllocele, 8 (5 per cent.); papilloma, 8 (5 per cent.); adenofibroma, 4 (4 per cent.); lipoma, 4 (3 per cent.); osteoma, 2 (1 per cent.); atheroma, 2 (1 per cent.).

These figures do not include tumors of the shoulder, elbow, and testicular cord. In every case a microscopical examination was made.

Among *sarcoma* the melanotic variety predominated (11 upon 28); the anus and rectum were the principal places of election of melanotic sarcoma (4 upon 11). Two were situated upon the sheaths of the penis; five upon the mammary gland, abdomen, elbows, head, and eye.

Fibrosarcoma was almost as frequent as the preceding. Three were found on the superior eyelids and one each on the superior lip, cheek, ethmoid bone, mamma, and sheath of the penis; four round-celled sarcoma were found in the head, breast, thigh, and rectum; two lymphosarcoma in the sublingual and prescapular lymph glands; one osteosarcoma of the superior jaw and another on the zygomatic crest.

A spindle-celled sarcoma of the internal angle of the eye was operated on four times, and during the last year there was no evidence of recurrence.

Of 10 *carcinoma*, 3 occupied the maxillary sinus, 4 the prepuce and the penis (place of election in the horse), and 3 the internal angle of the eye. All belonged to the pavement-celled variety. In one case a cancer of the maxillary sinus perforated the hard palate and penetrated into the mouth. In three cases, involving the sheath and the penis, extirpation of the tumor and the corresponding glands was practised.

Bothryomycosis was seen 16 times. Four were found on the mammary glands, and were successfully removed.

Of the 15 *fibromata*, 5 were found on the posterior, 4 on the abdomen, 3 on the thorax and shoulder; in 3 other cases it was a question of generalized fibromatosis, with localizations upon the internal face of the hind leg, the stomach, and breast. Excision was attended with success.

Of 8 keloids, 5 were found on the coronet and heels, and 3 on the canon. They resulted from calking, and were successfully treated by extirpation and cauterization.

Four cases of adenofibroma on the inferior third of the nasal mucous membrane were observed. They consisted of an agglomeration of small tumors of the size of a walnut, hard or soft, ulcerated and bleeding easily, and covered with a crust; the sublingual lymphatics were intact. Extirpation is made with a sharp instrument and the part curetted. They become more accessible by cutting the external ala of the nostrils and afterward suturing the same. Tracheotomy may be performed.

The osteomas were pediculated and situated on the inferior border of the lower jaw.

Treatment. Circular incision around the base, section with a saw, and suturing of the skin and the periosteum.

Two lipomas were seen—one on the forearm and another as large as a child's head in front of the sheath. Treatment, extirpation.—*Ann. de Med. Vet.*

OPOTHERAPY WITH THE JUICE OF THE SYMPATHETIC SYSTEM. Following Brown-Séquard, Boschetti, of the University of Parma, studied opotherapy with the testicular and cerebral juices, and demonstrated that these have a bactericidal action and are of therapeutic value when administered subcutaneously.

Recently, Boschetti has studied the juice of the sympathetic nervous system, which was prepared from the large sympathetic trunks and ganglia taken from horses and cattle. It was administered to dogs suffering from distemper and debility from chronic affections. From his experiments the author believes that this juice, as well as that from the cerebrum and the testicles, should fulfil a large number of clinical indications.—*La Clinica Veterinaria.*

STRYCHNINE POISONING TREATED SUCCESSFULLY WITH ATROPINE AND MORPHINE. The dog, weighing fifteen pounds, had all the symptoms of strychnine intoxication. Rancillia administered one-tenth of a grain of valerianate of atropine, which had no effect. He then injected hypodermically, in two divided doses, 2 centigrammes each of sulphate of atropine and sulphate of morphine—toxic doses—which were counteracted by the strychnine in the organism.—*Journ. de Med. Vet. de Lyon.*

GERMAN ABSTRACTS.

IN the *Deutsche Thierarztliche Wochenschrift* for January 18, 1902, there is an article by Edwin Klebs and Rievel entitled "Is Bovine and Human Tuberculosis Identical."

An experiment is reported wherein a calf was inoculated November 11, 1901, with a culture of tuberculosis growing in bouillon that had been concentrated to one-third of its volume by evaporation in a vacuum at a temperature of from 30° to 40° C. 2.5 c.c. of this material was mixed with an equal volume of finely pulverized wood charcoal and was inoculated beneath the skin of the neck. A similar inoculation was made on the hind leg, and a third inoculation with an equal amount of material was made into the peritoneal cavity. The culture used in this experiment was obtained from a man, and had been grown for several years in Klebs' laboratory in glycerin bouillon. The calf used for the inoculation was twelve weeks old. Its temperature at the time of injection was 39.7° C. The temperature increased to above 40° a short time after the inoculation. The animal was fed boiled milk, hay, and meal. The lymphatic glands about the point of inoculation became enlarged, otherwise the animal did not appear ill. On November 29 it died suddenly. This was eighteen days after inoculation.

On post-mortem examination it was found that there was extensive infection of the lymphatic glands of the neck and shoulder, also of the hind leg. The tissues around the lymphatic glands were congested. There was localized peritonitis and some enlargement of the lymphatic glands within the abdomen. The glands of the stomach and of the mesentery were swollen and of a dark color. The cut surface was moist and contained considerable black material.

The omentum for an area of 30 by 18 cm. showed considerable injection of the bloodvessels, distinct redness, a net-like deposit of grayish-red, flocculent and thread-like tissue that was closely adherent to the omentum. Microscopical examination and the inoculations of guinea-pigs proved that *all* of these lesions were tubercular.

To this experimental case the following cases are added:

A young, healthy man was employed by one of the authors (Klebs) to assist in making some investigations on milk infection. This young man had the habit of drinking milk from the tuberculous cows used in the investigation, and in a few months he died of miliary tuberculosis. The other case, in a family where there were six boys, one died at the age of two years of tuberculosis of the spinal column and the meninges. This child was the only one of the family that developed tuberculosis and also the only one that was fed upon cow's milk.

REPORTS OF CASES.

URETHRAL CALCULI.

By J. Hugo Reed, V.S.,
GUELPH, ONTARIO.

On October 14th I was called to see a grocer's delivery horse whose driver said he could not defecate. I had him brought to my infirmary. He was evidently endeavoring to defecate. Pulse about 45 and normal in volume; temperature normal; penis slightly protruded, but no apparent efforts were made to urinate. I treated for impaction of the colon with paralysis of the rectum. The next morning, while examining the rectum, I found the bladder distended, and in trying to pass a catheter met with an obstruction about five inches above the meatus. Manipulation located a calculus, but failed to move it. I cut down and removed it. It had a rough surface, was nearly round, measured three-quarters of an inch in diameter, and weighed two drachms. Excessive swelling took place at once, sufficient to interfere with suturing. I succeeded in suturing with cauterized catgut. The swelling continued, and I scarified the swollen parts, bathed with hot water, and applied refrigerants. The next morning the swelling was considerably reduced. I passed a catheter twice daily and sent him home on the 28th. On November 6th he was brought back, acting much the same as at first. In again passing the catheter I located another calculus just above the ischial arch. This was also immovable by manipulation, and I cut down and removed it. It was of the same nature as the first, but was irregular in form, measured 1⅜ inches in the longest diameter, and weighed 6 ounces. I stretched the urethra, but left the external tissues open. I again passed the catheter regularly and treated the wound with antiseptics. No urine escaped through the wound. On the 11th I was forced to leave home for four days, leaving the case in charge of an assistant. On my return I found urine escaping in considerable quantities from the wound. Taking hold of the ends of the sutures, they pulled away easily, bringing with them what appeared to be a portion of the urethra, which had sloughed. I then filled the wound with equal parts of boric acid and iodoform, and stitched it closely. After a few days a little urine passed through, but this gradually became less, and I sent him home on the 22d. In about four days the escape of urine had entirely ceased. I removed the stitches, and he has been working regularly since. He does not urinate quite as freely as normal, but suffers no inconvenience.

ANTITOXIN IN DISTEMPER.

By H. A. Stevenson, M.D.,
LONDON, ONTARIO.

The antitoxin treatment of certain diseases has a certain class of enemies who are opposed to this manner of treatment. I have always been an advocate of this method of treatment, and so I wish to relate one interesting case that has come under my notice lately and add one testimony in its favor.

I had a young Irish setter bitch which, when pregnant about four weeks, contracted a severe attack of distemper. I tried all the remedies known to give relief, but they failed to do her any good, and she gradually grew worse, and I thought that I was going to lose her. She had running at the eyes, fever, a thick, creamy discharge from both nostrils, and lost flesh very rapidly—became almost a skeleton. I obtained some of Mulford's distemper antitoxin, and gave her one moderate-sized dose as a last resort. I never saw in any patient such a change, and that very suddenly. In twenty-four hours she began to improve; in forty-eight hours the discharge from the nose stopped. She aborted at nearly full term, but we killed the pups, as they were too much trouble to her; she rapidly got well, and in a week she was able to go for a short run with the horse. I believe the antitoxin certainly worked well in this case; but this is only one case, and it may fail in others. I certainly will use it in all cases in future that I come across.

CREOLIN (PEARSON) IN ARTHRITIC SYNOVITIS.

By George Masgana, V.S.,
OWENSBORO, KY.

Case No. 1. Black mare, seven years old, seen first on August 29, 1901. Synovitis of tarsus following a kick from a mule two weeks before seen. Hock swollen; great tumefaction of surrounding parts; open wound, discharging an ill-smelling synovia; unable to bear any weight on the injured limb; temperature, 103° F.

Treatment. Opened the wound more freely, injected a 20 per cent. solution of creolin, and applied a hot bath of the same strength solution for fifteen minutes three times daily. Dressed the wound with a powder, composed of iodoform, boric acid, and starch, with an oakum-pad and bandage. August 30th, no fever, no smell to pus. On the 31st the mare began to stand on the leg; purulent synovial discharge almost ceased. On the eighth day all discharge ceased, and on September 9th the mare was driven to a buggy, showing no perceptible lameness.

Case No. 2. First seen September 2, 1901; six-months-old colt; seat of synovitis, the hock-joint; time occurring, not known; the colt found by owner walking on three legs in the field. The joint was open, running freely, and the discharge very fetid in odor; articulation much swollen. The same treatment applied, save the bandaging, as the colt was too wild and restless. At the end of three days the colt was using the limb, and on the seventh day the synovial discharge had ceased, and when on the pasture field with the dam showed very little lameness.

Case No. 3. September 2d; bay gelding used in livery work; synovitis arthritis of the carpal joint, the result of a kick received three months before, but was kept at work more or less since the injury. Very lame; extensive swelling; wound discharging freely a foul-smelling, purulent synovia; temperature, 102° F. The same treatment was applied, and one week later the discharge had entirely ceased, lameness gone, the opening closed, swelling reducing. No slings were used in any of these cases.

TRAUMATIC TETANUS.

Seen first August 26, 1901. Injected hypodermically carbolic acid, 95 per cent. strength, one-half drachm; glycerin, one and a half ounces; aquæ destillatæ, three fluidounces. Injections were made at the shoulder region, where but slight swelling followed. Injections heretofore made in the neck were followed by extensive sloughing; much of the sloughing region had to be extirpated with the knife, under which fistulous tracts six to seven inches long were noticed. A 20 per cent. creolin solution was used in washing and injecting the fistulous tracts, after which iodoform 8 parts and tannic acid 1 part, as a dressing, was followed by a rapid healing of the same and recovery from the tetanus.

The New Jersey Board of Agriculture have adopted resolutions recommending to the State Legislature the passage of the proposed measure to establish a State Board of Veterinary Medical Examiners.

EDITORIALS.

THE ATTITUDE OF THE DOMINION SHORTHORN BREEDERS TOWARD THE TUBERCULIN TEST.

Last year the Central Shorthorn Breeders' Association at its annual meeting in Kansas City was persuaded, as we thought then, by Canadian influence, to incorporate into a series of resolutions some irrational, illogical, and untrue statements in regard to the tuberculin test. It devolved upon us at that time to point out the inaccuracies and falsifications in these resolutions and to explain why the shorthorn breeders should discuss the tuberculosis question in a sober, temperate way.

Our explanation and protest seem to have had some effect, for this year the Central Shorthorn Breeders' Association did not repeat its foolish tactics.

But the Dominion Shorthorn Breeders have just had a meeting and they have adopted the following resolution:

"We, the Dominion Shorthorn Breeders' Association, at our annual meeting, resolve that the tuberculin test is unreliable, unnecessary, and in many cases injurious, and we urge the discontinuance of the compulsory use of the toxin by the Dominion Government Department of Agriculture."

It is stated that the resolution carried unanimously.

Three distinct statements, or charges, are made against tuberculin in this resolution. It is alleged that it is: 1, unreliable; 2, unnecessary, and 3, that it is injurious.

This attitude toward the tuberculin test is a reflection of the opinions of some breeders in England, and may be regarded as a view imported from that country. When, however, we recall the fact that shorthorn cattle have done more than those of any other breed to spread tuberculosis among the cattle of the world, and that it is rare to find a pure bred herd that will pass the tuberculin test, we find a possible reason for the hysterical vehemence of the Dominion Shorthorn Breeders.

The tuberculosis question is a great question. It is the greatest question now up for settlement before the breeders of all countries. It can only be settled by calm, careful study by competent men working with adequate facilities. To throw stones and tell lies will not contribute to but will retard the solution of this problem. For this reason we regret the attitude of the Dominion Shorthorn Breeders. They have set themselves down as a body of men in no frame of mind to deal with a great and serious menace to the cattle interests in general and to their breed in particular.

In making this statement we wish it to be understood that we speak of the Association as a whole and not of the individuals composing it. As an individual, each Shorthorn breeder is as amenable to reason as is any other breeder, but together they do foolish things, as crowds sometimes do. Back of it all must be the fear that their herds are vulnerable, for the Hereford, Ayrshire, and Angus breeders do not do these silly things.

As to the allegations contained in the resolutions:

1. The tuberculin test has itself been tested as has no other method for diagnosing any disease of man or animals. It has been tried by government commissions and experiment stations in all civilized parts of the world. After these trials, going on for ten years, it stands as incomparably the most reliable test or means for recognizing tuberculosis in animals, and, more than this, as the most accurate means now in use for the diagnosis of any special internal disease. Is it infallible? No. What is infallible in diagnosis or treatment? Nothing.

2. As to whether the tuberculin test is necessary or not depends upon whether it is necessary to prevent traffic in tuberculous cattle. If it is necessary to prevent such traffic, no better way to do it has been devised than that afforded by the tuberculin test. Of course, the Shorthorn breeders who have tuberculous cattle to sell think that such prohibition is unnecessary and is burdensome. We will admit that it is burdensome to be refused the privilege of infecting your customer's herd, but the customers think it is necessary. So here is a perfectly natural difference of opinion.

3. The charge that the tuberculin test is injurious shows a *naiveté* among the Dominion Shorthorn Breeders that is interesting. This old charge was exploded years ago. All of the experiment stations have shown, and thousands of tests prove, that the test is harmless. But, of course, there is another side to this too. The test *is* sometimes injurious—to the pocket of the man who hopes to get a high price for a tuberculous cow.

Now, Messrs. Dominion Shorthorn Breeders, *be men.* Tell the truth. Instead of growling at the attempts your government is making to free you from this scourge, devise a better plan if you do not like the present one. There can be no doubt that a better plan will be adopted as soon as one becomes available.

Instead of grumbling at men who do not want to buy tuberculous cattle, free your own herds of disease, so that you will have none to sell. When your herds are clean you will find your objections to the tuberculin test have vanished.

You have before you an instructive and inspiring example in the work that has been done so successfully by your distinguished and public spirited fellow-breeder, Hon. W. C. Edwards.

WHAT IS THE PROPER FIELD OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION?

In answering this question, let us recall that there are at this time a large number of very active local veterinary societies, and in each State in which the veterinary sciences have attained any degree of prominence there is a more or less efficient State Veterinary Society.

These organizations hold monthly, quarterly, semi-annual, or annual meetings that bring together the best veterinarians within their respective fields, and, by invitation, frequently obtain the benefit of counsel with distinguished veterinarians from distant places. They provide for the reading of papers and for demonstrations on the chief topics of interest to the general practitioner.

Veterinarians have an opportunity in these meetings to discuss with their colleagues the difficult and unusual cases that they may have met, and to obtain the benefit of counsel and advice. If a matter of legislation is under consideration it is discussed and action is taken in regard to it. At these meetings positive information is imparted and the policy of the profession is established.

The local and State veterinary societies have an enormous field of usefulness. The *esprit de corps* of the profession of a community depends largely upon the activity and standing of these societies. The States that have good laws governing the practice of veterinary medicine and the repression of disease have good State veterinary societies back of these laws. It is of the highest importance—it is absolutely essential—to the welfare of the veterinary profession in this country that the local and State veterinary societies shall be sustained and strengthened.

If these societies fulfil all of the requirements of the veterinary profession there is no need of other societies for veterinarians. But, in addition to the general and local questions that have been mentioned, there are other higher questions that affect the country and profession as a whole. There are certain questions that are distinctly national, just as there are certain questions for local boards of health and questions for State live-stock sanitary boards, and, at the same time, a distinct field of usefulness for the United States Bureau of Animal Industry.

If the United States Bureau of Animal Industry were to attempt to do the work of local and State sanitary organizations the work of these local organizations would be interfered with, the organizations themselves would be weakened, and the proper work of the national bureau would be crowded and impeded.

In the same way the American Veterinary Medical Association has its distinct field. By infringing upon the proper fields of usefulness of local and State Veterinary Societies it weakens these local organizations, it excludes its own proper work, and weakens itself.

The American Veterinary Medical Association is the Supreme Court, it is the Senate, it is the Carnegie Institution of the veterinary profession.

Why should petty police justice cases be tried in the Supreme Court or village ordinances be thrashed out in the Senate, or why should grammar-school instruction be given in the highest university in the land?

For the sake of the local and State veterinary societies, for the sake of the American Veterinary Medical Association, we hope that our national organization will "find itself."

MINNEAPOLIS WINS.

The vote of the Executive Committee of the American Veterinary Medical Association has decided the place of meeting for 1902 in favor of Minneapolis, which will be the Association's first trip to the Northwest. Chicago and Detroit have been the nearest points to that city in the meetings of the past, and there will be much interest in the success of this meeting.

In selecting Minneapolis it is a recognition of one of the most substantial and successful cities of that wonderful section of our country. It is also an acknowledgment of the strength that Minnesota has developed in the profession, in greater numbers, in splendid association work, in broad sanitary control work, in educational legislation, in regulations by statute for the control and eradication of certain diseases so disastrous to the welfare of the live-stock industry, as well as the health of her people.

Her representatives of the profession have long been active in the American Veterinary Medical Association, and one could always depend upon that State being represented. They have always taken a keen interest in our work and contributed much to the success of our national organization. Since we have become American in name we must strive to become more wholly American in membership, and the Canadas and Manitoba will send more to our meeting in Minneapolis than probably to any other city in our States. It will be a successful meeting, and every member and veterinarian should plan to be present at Minneapolis in September. The names of Lyford, Reynolds, Brimhall, and McKenzie are guarantees of a good and profitable meeting.

AT IT AGAIN.

THE rivalry in the veterinary profession to exceed all others in the production of an extensive literature on rabies and hydrophobia has broken out again. This time in Pennsylvania. We have not heard recently from Massachusetts on this subject. The Bay State for many years was the storm centre of this agitation, but it has moved south and west, and the District of Columbia and Pennsylvania threaten to rob the effete East of its laurels in this direction. We hope it won't reach Chicago, where it would be sure to assume tornado-like characteristics. The Western plains are just beyond.

CORRECTION.—By a typographical error in January, 1902, number of the JOURNAL, page 64, "For Sale," third line, reads, "practice averaging twenty thousand dollars per year," when it should read, "practice averaging two thousand dollars per year."

NECROLOGY.

ROBERT JACKSON SAUNDERS, V.S.

ON January 22, 1902, at Highland Station, West Roxbury, Mass., Dr. R. J. Saunders, died from heart lesions as a complication of rheumatism, aged sixty-six years. He was one of the oldest members of the A. V. M. A., and though a self-made man, was a thoroughly conscientious and studious practitioner, and gained the respect and good-will of all who knew him. When the A. V. M A. held its annual meetings in Boston, and the semi-annual ones in New York in its early history, it was rare that Dr. Saunders was ever absent, and he was a frequent contributor to the programme. He was a brother to the late William

Saunders, the father of Frederick and an uncle of the late John S. Saunders. He gave up active practice about two years ago on account of rheumatism, but was only confined to the house for three days. Several others of the same family have entered the veterinary profession and stood for much of the profession's advancement in the "Bay State."

WILLIAM H. PROPHETT, D.V.S.

THE above-named veterinarian died at Suffield, Conn., January 17, 1902. His death followed a long period of illness, which had forced his retirement from active practice some five years before. The deceased was a graduate of the American Veterinary College, class of 1885, and had practised at Bridgeport, Conn., for the greater part of his professional career. His son, James H. Prophett, veterinarian, a graduate of the same college as his father, succeeds to his business.

GEORGE S. CROSSMAN, V.S.

AT Malone, N. Y., December 29, 1902, Dr. George S. Crossman died after an illness of about two years, at the age of forty-one years. He was a student in the agricultural course at Cornell University, but gained his veterinary degree at the McGill University, Veterinary Department. Dr. Crossman was known as a skilful and successful practitioner, and was keenly interested in the advancement of his profession. He was an active and potential factor in Democratic politics in the Empire State. He was buried with Masonic ceremonies and with similar rites by the Odd Fellows, with both of which Orders he was actively identified.

AT St. Thomas, Ontario, January 13, 1902, Dr. A. H. King, graduate of the Ontario Veterinary College, class of 1886.

CIVIL SERVICE EXAMINATIONS.

EXAMINATIONS for meat-inspectors will be held in all the large cities of the United States on February 27, 1902, by the United States Civil Service Commission. All applicants must be twenty years old or over and be graduates of veterinary colleges.

COMMUNICATION.

The Secretary of the State Live-stock Sanitary Board has sent us the following curious communication. In case the suggestion proposed is not made use of by the Live-stock Sanitary Board of Pennsylvania, some of the other States of the Union may wish to avail themselves of this opportunity :

"——, JANUARY 23, 1902.

"TO THE STATE LIVE-STOCK BOARD, HARRISBURG, PA.

"I obtained Bulletin No 75 Tuberculosis of Cattle Pennsylvania for its Repression.

"I have a Plan to Stamp out the cause of the Tuberculosis. My Plan is no Fraud or quack I have experimented on My own Cattle and proved successful. I have allso in My Plan a preventive of epidemicks in Horses that I have used over 8 years and proved successful. I claim that Tuberculosis in Cows the Milk and butter or Meat or any product of Such Cows is dangerous to use as My plan will show. If the Live Stock Sanitary Board of Harrisburg, Pa will pay Me the compensation that I want I will forward the Plan to the Live Stock Sanitary Board of Harrisburg Pa. The compensation that I ask for My Plan is scarcely a handful according to the Money that has been spent and the loss to Stock owners not saying anything of the Human Lives that have been lost. I want Ten Thousand Dollars (10.000) All Nations should Appropriate towards the Stamping out of Tuberculosis. Now if the State Live Stock Sanitary Board of Harrisburg can obtain Fifty Thousand or one hundred Thousand I only want (10.000) Ten thousand and the Ballance the Four members can divide among themselves. If you do not understand Me come to see Me I dont practis veternary since the Law required a Veterinary to Regester.

"I did not Regester on account of ill health. My Plan Shall be writen to the point to the best of My knowledge and ability.

"Yours * * * *

"Gentle Men if I am not the proper Man to write and forward the plan in the Commonwealth of Pa throw this letter in the waste basket and inform Me who is a proper Man to write and forward the plan.

"Yours * * * *"

SOCIETY PROCEEDINGS.

ANNUAL MEETING OF THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

THE eighteenth annual meeting of the Veterinary Medical Association of New Jersey was held at the Trenton House, Trenton, N. J., on January 9, 1902.

The meeting was called to order at 10 A.M., by the President, Dr. William Herbert Lowe, of Paterson.

Members present: The following members were in attendance: Drs. A. Brown, of Windsor; T. Earle Budd, of Orange; George E. Fetter, of Hopewell; James T. Glennon, of Newark; G. P. Harker, of Trenton; E. A. Hogan, of Newark; J. B. Hopper, of Ridgewood; L. P. Hurley, of Hopewell; E. L. Loblein, of New Brunswick; S. Lockwood, of Woodridge; William Herbert Lowe, of Paterson; J. Payne Lowe, of Passaic; J. V. Laddey, of Arlington; James T. McDonough, of Montclair; James M. Mecray, of Maple Shade; George W. Pope, of Athenia; Werner Runge, of Newark; T. E. Smith, of Jersey City; A. T. Sellers, of Camden; S. S. Treadwell, of Englewood, and L. E. Tuttle, of Bernardsville.

Visitors and delegates present: Dr. Robert W. Ellis, of New York City, President of the Veterinary Medical Association of New York County; Drs. Leonard Pearson and W. Horace Hoskins, of the Pennsylvania Association; J. M. W. Kitchen, M.D., of East Orange and Dr. T. B. Rogers, of Woodbury.

President Lowe gave his annual address, which was pithy with good suggestions to committee-men and members in general.

Applications for membership were received from Drs. Wm. P. Fink, of Atlantic City; Jacob Bühler, of West Hoboken, and Edward Rowe, Jr., Health Officer for the city of Summit.

Applicants were duly vouched for and approved by the Board of Censors and were unanimously elected to membership.

Dr. Werner Runge, chairman, presented the report of the Public Health Committee, which is here given in part:

"Dr. John V. Laddey has prepared a paper, entitled, 'The X-Ray as an Aid in the Diagnosis of Tuberculosis in Cattle.' Dr. Werner Runge will submit a paper entitled 'Results of my Experiments to Transmit Tuberculosis of Man to the Bovine Race.' The work of the Public Health Committee is of a broad character and can only be covered in part. The committee recommends the following resolutions:

"*Resolved*, That the Members of Congress and State Legislatures be requested to provide suitable laws establishing a commission to be composed of the best men available, empowering said commission to make use of condemned criminals as subject for experimenting in the transmission of bovine tuberculosis to mankind.

"*Resolved*, That no cattle should be allowed to drink from any polluted pond, brook, or river. All public water troughs should be so constructed as to allow constant circulation of the water contained therein; that the overflow of said trough should be so constructed as to allow all water to flow from the sides of the same, thereby carrying off the surface water of the said troughs continually.

"*Resolved*, That we, as members of the Association, do hereby declare ourselves as heartily in favor of carrying out the law making it compulsory on the part of all veterinarians to report glanders whenever it comes under their observation. And we further suggest that the law be carried out stringently, and that the party concealing any case of glanders coming under his observation be summarily dealt with.

"*Resolved*, That it is the sense of this Association that every city, town, or township Board of Health should have at least one veterinarian on its staff, whose duty it shall be to have charge of contagious diseases of animals and the inspection of meat and milk.

"WERNER RUNGE,
"J. V. LADDEY,
"G. F. HARKER."

In the discussion following the reading of the report special interest centred upon the recommendation made regarding experimental work upon criminals.

Dr. Pearson spoke of the personal responsibility of physicians who experiment upon human beings, and asked if a physician who by injecting bovine tubercle bacilli into a human body and thus causing disease and death be adjudged guilty, what can be said of the editors of agricultural papers who have been recommending owners to keep tuberculous cows and use or sell the products from such animals? He believed that public opinion was against experimenting on human beings, that it would prejudice the public against medical men and shake public confidence in them, and would be morally wrong. Experiments should be limited to animals.

Dr. Laddey, speaking for the recommendation of the committee, argued that in cases of experimenting as suggested by the committee, the law would place the responsibility upon the State, and a physician would be acting for the State, and hence not personally responsible for the result of any experiment. Dr. Treadwell argued that such a law could not prevail in this country, where all men are born free and equal.

Dr. Rogers stated that there was danger of a misconception of the fundamental principles of law; that we should remember the objects for which criminals were punished, among them being the protection of society and the reformation of the criminal.

Dr. Kitchen argued that the air which we breathe is laden with germs and that they are not to be so greatly feared as some might believe; that autopsies reveal the fact that tuberculosis exists or has existed at some period of life in a large percentage of the human family, and that it might not be such a serious matter for a person in good health and with great resistive power to subject himself to experiments, and that the State might better pay volunteers than experiment with criminals.

Dr. Hoskins gave warning that such a measure as had been suggested would meet with much adverse criticism in this country, where many persons were even opposed to experimental work upon animals; that such a radical movement in the profession would be freighted with great danger.

At 1 P.M. the discussion was closed and adjournment taken for dinner.

Upon reconvening the report of the Animal Industry Committee was called for and given by the chairman, Dr. J. Payne Lowe, and was in substance as follows:

"Recommended that competent veterinarians be officially connected with all agricultural and live-stock fairs, horse shows, and dog shows, and that an animal census of the State be taken.

"Suggested that the subject of transportation of animals be looked into; the cars used for transporting animals, their construction and equipment, light and ventilation, cleanliness, disinfection, manner of feeding, watering, and caring for stock are some of the details that the Association should investigate. There are a large number of horses and cows shipped into this State, cows advanced in pregnancy and lost either at the time of parturition or afterward, due to the effect of a retained placenta, metritis, etc., where the cause can be traced directly to rough treatment received and exposure during transportation. Your committee would recommend that all stallions and bulls be periodically examined as to soundness and health by a competent veterinarian appointed by the proper State or county authorities, and that before said stallions and bulls be allowed to stand for breeding purposes the owners of such animals be required to produce a certificate of such veterinary examination. There are a number of diseases (such, for example, as osteoporosis in horses) that, from an economic and agricultural stand-point, concern the people of the State, and which the veterinary profession must deal with, and your committee is of the opinion that the State—State Agricultural College and Laboratory—should make original investigations as to the etiology and pathology of this class of diseases. We would further recommend that this Association urge upon the proper authorities the necessity of asphalt and similar pavements being sprinkled with sand during the slippery season, as many animals are severely injured by falls, etc. This committee would like, at a later date, to take up the subject of foods and feeding, with relation to the application of scientific principles in feeding animals to produce the best and most economic results."

Signed for the committee,
J. PAYNE LOWE,
Chairman.

Dr. Budd, chairman of the Committee on Legislation, reported for that committee, and recommended that the Association indorse a bill which had been drafted by the committee, the said bill providing for the creation of a State Board of Veterinary Medical Examiners to regulate the practice of Veterinary Medicine, Surgery, and Dentistry in the State of New Jersey. The bill was read and freely discussed by members, and it was finally voted that the committee be authorized to draw upon the treasury for the needed funds and assume full charge of introducing the bill in the Legislature.

Dr. Sellers, chairman of the Committee of Arrangements for the Atlantic City meeting, reported for the committee.

The report was accepted and the committee discharged, with thanks.

Dr. J. V. Laddey, delegate to the State Sanitary Association, reported, and his report was received and filed.

Dr. William Herbert Lowe reported as a delegate to the meeting of the New York State Society. It was moved and carried that a vote of thanks be extended to the veterinarians of Pennsylvania and New York for the assistance rendered this Association in entertaining the National Association at the Atlantic City meeting.

Drs. Treadwell, Sellers, and Budd, appointed a committee on resolutions, presented the following, which were unanimously adopted by a rising vote:

"WHEREAS, God in his wise providence has taken away our brother and fellow-laborer, Rush S. Huidekoper, who had for many years been a faithful worker in our profession, be it

"*Resolved*, That we hereby express our appreciation of his high personal character, his wise counsel, his long-continued interest in the veterinary profession, and his ever willing and substantial help. With deepest sympathy for his bereaved family, we commend them to God, the only comfort in such an hour of trial; be it further

"*Resolved*, That a copy of these resolutions be sent by the Secretary to the widow and family of our deceased brother."

J. M. W. Kitchen, M.D., of East Orange, N. J., who is interested in the dairy industry, read a paper entitled "Some of the Unsolved Problems of Milk Fever." The paper was well received and quite generally discussed; the conclusions reached were that while the disease was probably caused by ptomaine poisoning originating in the udder, no one had as yet succeeded in demonstrating the fact positively, and that laboratory experiments should be conducted by the State and Government, with a view of determining the exact nature of the disease, the expense of such experimenting being beyond the reach of the average owner of live-stock.

A paper entitled "The X-Ray as an Aid in the Diagnosis of Tuberculosis" was presented by Dr. J. V. Laddey, who has been making some practical use of an X-ray machine in the work of inspecting cattle for slaughter. Dr. Laddey illustrated his paper by means of ante-mortem and post-mortem photographs of animals subjected to the experiment.

The paper appears on page 97.

The Public Health Committee was requested to secure, if possible, an X-ray apparatus for use at the next meeting.

Dr. Werner Runge reported some personal experiments conducted by him during the past few months, and his report, which is of great interest, is here given in full:

" *To the President and Members of the Veterinary Medical Association of New Jersey:*

"GENTLEMEN: The statement made by Prof. Koch, M.D., at the British Congress on Tuberculosis, held in London, England, June 23, 1901, that human tuberculosis cannot be transmitted to the bovine race, is an error and without any practical foundation. It has not only aroused the profession in general, but medical and laymen have become more or less interested in the matter. In view of these facts the members of our profession should use their utmost efforts in investigating the above statement.

"Through the kindness of Mr. Stephen Francisco, of the Fairfield Dairy, Caldwell, N. J., cattle have been placed at my disposal, as well as the use of the Isolation Hospital at the said dairy, for experimental purposes. Also, through the valuable aid of Dr. R. N. Connolly, Bacteriologist for the Newark Board of Health, I was assisted in selecting a specimen of virulent sputum of a young person affected with acute tuberculosis.

"On August 14th last I selected a yellow cow that gave no reaction to retest, nor had it done so to a previous tuberculin test made November 12, 1900, and injected the same hypodermically on August 29, 1901, with the above-mentioned sputum. At both shoulders and both flanks I made also four injections into a calf five weeks old, born in a pasture lot and kept in the said lot until the day of injection, the mother of which, previous to the birth of the said calf, giving no reaction to the tuberculin test. As all cattle of this dairy, about 600 in number, are tested previous to their coming into the herd, and are rejected if they give any reaction at all, it is reasonable to believe that this calf was free from tuberculosis, as it had never been exposed to the same. The temperature of both animals, taken twice daily after the injection of the sputum, did not show anything abnormal, and no symptoms of any disease were revealed except some enlargement of the retropharyngeal glands. The calf was killed November 14, 1901, eleven weeks after injection. The cow was killed November 20, 1901, about twelve weeks after injection. The post-mortem showed the following lesions:

" The calf killed November 14th did not show any marks at the place of injection, but enlarged tubercular bronchial glands, several of which were broken down and calcareous. A large number of gray nodules were visible in the lung tissue, also one cyst, about the size of a small hen's egg, and full of pus. The microscopical examination of the scraping of the walls of the cyst, as well as the scraping of the interior wall of the broken-down gland, showed the bacilli of tuberculosis in large numbers.

" The cow killed November 20th had a large cyst full of pus at the right shoulder, and an induration of the tissue on the left side at the places of injection. The bronchial glands were enlarged and partly broken down and full of calcareous substance. The microscopical examination of the scraping of the interior of the wall of the said broken-down glands also showed tubercle bacilli. Respectfully submitted,

" WERNER RUNGE."

The members expressed their appreciation of Dr. Runge's efforts in experimental work, and among those who joined in the discussion were Drs. Pearson, Hoskins, Kitchen, and Rogers.

Dr. James T. McDonough, of Montclair, here read a paper entitled " The Horse's Foot." Dr. McDonough's paper was well written and upon a subject with which he is especially conversant.

As the hour was late it was voted that a discussion of the paper be deferred until the next meeting.

At 5.30 the meeting adjourned. The next meeting will be held at Newark, N. J., in July. GEORGE W. POPE,

Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE January meeting was held at the northwest corner of Broad and Filbert Streets, Philadelphia, Pa., January 14, 1902, with the following members of the profession in attendance: Drs. Cox, Harger, Williams, Carter, Underhill, Lintz, Marshall, Noack, and Ranck, also about twenty students of the Veterinary Department, University of Pennsylvania. After the regular business was transacted we listened to valuable papers by Dr. C. J. Marshall and Dr. S. J. J. Harger.

The object of Dr. Marshall's paper in part was to prevent our brothers in the veterinary profession from making flippant remarks, either to other members of the profession or to our clients, about the uselessness of certain drugs, instruments, or operations, especially those which have stood the tests for hundreds of years and proved themselves useful in the hands of skilled men. The incentive for Dr. Marshall writing this paper was certain unqualified statements made at the last meeting of the A. V. M. A. in the discussions. One was that "90 per cent. of the drugs we use in our practice are fakes." Another one was "that the firing-iron should never be used." Dr. Marshall would like to know whether the veterinary profession is ready to accept these statements, and, furthermore, if we accept them as factors, then, in his opinion, it is about time to revise the pharmacopœia.

The next paper, which was very educating to all, was the "Anatomo-pathological Study of Ringbone and Spavin as Indicated by Examination of Pathological Specimens," by Dr. S. J. J. Harger. The subject was one that the author was in thorough touch with, and he covered the ground in a very interesting and instructive manner.

Reports of progress from several of the committees were received.

E. M. Ranck,
Secretary.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

President Winchester has appointed the following members of the Committee on Pharmacopœia: Dr. L. A. Merillat, Chicago, chairman; Dr. E. L. Quitman, Chicago; Dr. D. King Smith, Toronto; Dr. J. J. Repp, Iowa; Dr. E. M. Ranck, Philadelphia; Dr. H. D. Hanson, New York; Dr. R. R. Bell, of Brooklyn.

President Winchester has appointed Dr. S. L. Hunter, of Fort Leavenworth, Kansas, to fill the vacancy on the Army Legislative Committee caused by the death of Dr. R. S. Huidekoper.

NEW PUBLICATIONS.

Bulletin No. 79 of the State Live-stock Sanitary Board adds more literature to the subject of "rabies." It is prepared by the bacteriologist of the Board, Dr. Mazyck P. Ravenel. It covers the history, distribution, animals affected, causes, treatment, prevention, and eradication. If the English-speaking veterinarians of the world were supplied with literature on all other subjects as prolific as that which is extant to-day on rabies and hydrophobia one's library would reach very large dimensions.

NOTES.

There is pending in the Legislature of Massachusetts a bill to abolish the Board of Cattle Commissioners and to substitute for it a Cattle Bureau, with a chief in the Board of Agriculture. It is thus proposed that all of the work of the commission shall be vested in one man.

This move is in harmony with the present spirit of concentration and is practically what a great many States have done in appointing State Veterinarians. Multiheaded executive boards are often unsatisfactory.

There is in the law an omission that we regard as serious. It is not provided that the chief of the cattle bureau shall be a veterinarian, although all of his duties will be in the administration of veterinary work. Of course, it is probable that the Governor will appoint a veterinarian to this position, but it would have been better had this requirement been placed in the bill.

The present commission which is to be abolished is composed of two farmers, one of these a cow-dealer and one a veterinarian.

It appears probable at this writing that the bill will pass, for it is recommended by the Governor in his message and is reported to the Senate jointly by the Committees on Agriculture and Public Service.

A bill has been introduced in the Massachusetts Legislature to abolish the Board of Cattle Commissioners and establish a Bureau of Cattle, with a chief as its head, in place of the three Commissioners. The proposition has the approval of the Governor. What is the attitude of the Bay State veterinarians in the matter?

The new organization of veterinarians of Cuyahoga County, Ohio, are actively instituting actions against a number of illegal practitioners of veterinary medicine, under the laws of Ohio regulating the practice of the veterinary profession.

The Pennsylvania State Board of Veterinary Medical Examiners instituted several suits against alleged illegal practitioners in York and Lancaster counties in February. The successful prosecutions in Schuylkill and Bedford counties has had a very salutary effect.

Columbus, Nebraska, reports the death of a large number of horses from some unusual symptoms—sudden blindness, loss of nervous power, animals running into barbed-wire fences, loss of sensation, cold sweats, and death in a few hours.

PERSONALS.

Dr. J. Hugo Reed, of Guelph, Ontario, in connection with his veterinary infirmary, deals in high-grade coach and driving horses.

Dr. William H. Martenet, of Baltimore, Md., was a severe sufferer in December from septic infection of a finger, which ultimately involved the entire hand, but we are glad to report his recovery, with nothing more serious than the local infection.

Dr. George B. Jobson, of Franklin, Pa., is out in the January 30, 1902, issue of the *National Stockman and Farmer* with a vigorous defence of the work of the Pennsylvania Live-stock Sanitary Board.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, addressed the Agricultural Society of Salem County, N. J., on "How to Establish a Healthy Dairy Herd."

Dr. A. Darling, of St. Louis, Mo., is a breeder of Japanese spaniels and is owner of the imported stud dog "Totaro."

Dr. W. Harry Lynch, formerly of Massachusetts, a student of the Kansas City Veterinary College, made two successful trips to South Africa with horses and mules for the British Government.

Dr. E. C. Switzer, of Springfield, Mass., is the owner of a gasoline carriage which he uses in his equine practice. Surely a strange combination.

Dr. G. L. Salisbury, Jr., of Wickford, R. I., reports among his January cases one that had attained the age of thirty-six years, having been foaled in 1866.

The many friends of Dr. E. M. Ranck, State Secretary of the A. V. M. A. for Pennsylvania, will be glad to learn of the convalescence of Mrs. Ranck, after many days of uncertainty as to her life, incidental to an acute attack of appendicitis, followed by surgical interference.

FOR SALE

Property and practice in a good location, twenty-five miles from Lansing, Mich., good country and good stock; nearest opposition ten miles; practice averaging two thousand dollars per year. Reason for selling, poor health. For particulars apply to

J. S. GRANT, V.S., Portland, Michigan.

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ANATOMO-PATHOLOGICAL STUDY OF RINGBONE AND SPAVIN AS INDICATED BY EXAMINATION OF PATHOLOGICAL SPECIMENS.[1]

BY S. J. J. HARGER, D.V.M.,
PHILADELPHIA, PA.

THERE is some diversity of opinion as to the manner of production, the seat of the primary lesion, and the order of progression of the successive stages of the alterations of these diseased conditions. I anticipate that some of you may entertain varying views upon these points, and I shall merely interpret the facts as they appear to have presented themselves to me from a series of specimens which I have examined.[2]

Ringbone. By this term I shall designate the exostoses having for their base the bones from the middle of the first phalanx to the os pedis (coronary ringbone). It is most frequently the lower extremity of the first and the upper end of the second phalanges—at the tuberosities where the lateral ligaments are attached—that are the primary seat of the exostosis. In rare cases the latter may be confined to the pyramidal eminence of the third phalanx, involving the termination of the anterior extensor tendon of the phalanges and accompanied by a bulging of the superior border of the hoof. The distinction of high and low, true and cartilaginous ringbones of the English and French should, I believe, be discarded.

Ringbones, according to the seat of the lesion, may be articular and periarticular.

In the former the process is as follows: In the compact bone tissue, a short distance under the articular cartilage, a rarefying osteitis takes place over an area appearing in transverse section as large as a pea or larger. The bone tissue becomes absorbed, leaving a cavity filled up with a more or less soft, embryonic tissue and bloodvessels; in other words, a rarefying osteitis. The process extends gradually toward the articular cartilage, which becomes ulcerated over irregular areas and desquamates, as is frequently seen in cases of osteoporosis, constituting an osteo-arthritis. This inflammatory zone in the bone now becomes the seat of a condensing osteitis (osteosclerosis). The soft, vascular, embryonic material now becomes organized, infiltrated with calcareous matter, and converted into condensed or compact bone. The articular cartilage of the opposing bone at a point opposite to articular ulceration of the bone first affected likewise commences to ulcerate, and leads to an osteo-arthritis at that point. The two articular ulcerations being contiguous will finally form adhesions and become ossified. This centre of ossific union may be localized, or in aggravated cases may involve the entire articular surface and form a complete ankylosis. There is first a rarefying, then a condensing osteitis, and, finally, ossific union of the two bones at those points where the process is completed. The articular ulceration usually commences toward the margin of the articular surface.

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[1] Presented at January meeting of the Keystone Veterinary Medical Association.

[2] Specimens in the museum, Veterinary Department, University of Pennsylvania.

The histological alterations are the absorption of the bony tissue and the bone cells, enlargement, and saccular dilatations (lacunæ of Howship) of the Haversian canals, which are filled with embryonic cells and congested bloodvessels—a picture which is repeated in the generalized bony lesions of osteoporosis, and called osteitism or otitic diathesis, which so often in these cases predispose to fracture.

Peri-articular. The exostosis develops upon the periphery of the bone. It is an osteoperiostitis. It commences as a rarefying and then passes into a condensing osteitis of the superficial or subperiosteal layers of the compact tissue of the bone, which is communicated to the periosteum and provokes a periostitis. The result is a bone tumor of variable dimensions. The exostoses of the ends of two contiguous bones may become ossified, forming a peripheral or false ankylosis, while the articular surfaces themselves may retain their normal state.

The structure of an exostosis differs slightly from normal bone: It is more porous; the Haversian canals are larger, saccular, and filled with embryonic tissue and bloodvessels; the bone cells are less numerous; its earthy salts are less abundant, and by maceration in an acid solution it becomes decalcified in much less time than normal bone. The ligaments and the synovials also show inflammatory alterations.

Reciprocal Relation of Articular and Peri-articular Ringbones. Which is primary and which is secondary, when both exist? Which occurs the more frequently? This is what I more especially sought for. Udriski, of the Bucharest Veterinary School, examined 55 specimens: 20 were exclusively peri-articular, without any articular lesion; 24 showed lesions in both places; 11 were ankylosed. The collection which I examined consisted of 29 specimens: 20, or two-thirds of the entire number, were exclusively peri-articular; 9 showed both external and internal lesions. Among the latter there was ankylosis, partial or complete, and while the exostoses were well marked or large, the articular ossification was progressive—that is, the exostoses were more or less stationary; the only difference in the specimens was the successively increasing degree of the obliteration of the joint, which seems to have been the last thing to have taken place. In one case there was false ankylosis, while the articular surfaces were normal. In no case was there any articular ulceration without periosteal deposit.

The evidence obtained from these specimens seems to point to the general deduction that ringbone begins primarily on the periphery of the bones, and only secondarily extends into the joint. While it cannot be denied that the articular lesions may be primary, these cases are by far in the minority; and in such a case, before the local temperature is altered, a correct diagnosis is difficult, if not impossible.

It would follow from these statements that in prescribing treatment early, and before there is any mechanical interference in the joint movement, the prognosis should, in the majority of cases, be favorable; while, when the articular surfaces are already affected, the prognosis should be reversed. We know that, for old ringbones, firing is not very successful; ankylosis is difficult of production because of the difficulty of destroying so large and deep-seated articular surfaces as those of the coronary joint.

Spavin. Opinions are at variance as to whether spavin (arthritis chronica deformans of man) commences peripherally as a periostitis or centrally as an osteo-arthritis of the hock bones. Does the lesion progress centripetally or centrifugally? Most veterinarians are inclined to the former view, and for this purpose I have examined about 40 specimens which have been collected promiscuously at various times. I shall not here refer to the mechanism of the causation of hock diseases.

Upon these specimens the following alterations were observed:

In 7, no exostosis. Occult spavin-ankylosis of the scaphoid and large cuneiform.

Ankylosis scaphoid, large and small cuneiform, in 11.

Ankylosis scaphoid, large and small cuneiform, and metatarsus in 10.

Ankylosis scaphoid, large and small cuneiform, and cuboid in 7.

The remaining were of miscellaneous ossifications, between the astragalus and calcis, astragalus and scaphoid (least frequent), the entire tarsus, etc.

In all cases accompanied by an exostosis the interarticular lesions were well advanced; and in no case excepting one—and this was exceedingly doubtful—was there any peripheral deposit with a normal state of the articular surfaces.

The general order in which, from these observations, the hock bones became affected was as follows: The scaphoid and large cuneiforms, the three internal bones of the lower row, the lower row and the metatarsus, and, finally, the three internal bones of the lower row, with the cuboid of the same row. If I am correct in making these deductions the lesions of spavin should commence as a scaphoid, large, cunean arthritis, and, contrary to the frequent assertion, the small cuneiform was not the seat of the primary lesion. The so-called "occult" spavin may, therefore, be a variety of spavin in its usual sense when the lesions remain in that condition for a longer or shorter time, or merely the beginning of a condition that spreads to other bones and subsequently manifests itself by an external enlargement. The time required for the latter to become visible on the exterior is usually said to be from six weeks to two months. Spavin, therefore, seems to develop eccentrically, beginning within the internal bony structure and the articular surfaces.

We cannot deny the probability of spavin commencing as a periosteitis in cases of traumatisms and hyperextension of the internal ligaments of the hock joint, but this is not the general mode. It also appears to me that these are not the usual causes, but that the latter operate incessantly at every step the animal takes, in the form of constant concussions transmitted through these bones, the perpendicular pressure of one bone upon the other, and the traction of the interosseous ligaments. Relative to inheritance in which there is a defect in the organization and integrity of the intimate structure of bone—an osteitic diathesis—the hock bones are subjected to the injurious effects of these constant causes, and thus become diseased more readily.

Very recent cases of undoubted hock lameness without visible external alterations often respond to the effects of a good blister. Having said that such diseased conditions of the hock are primarily articular, I do not mean to convey the idea that the blister cures by producing ankylosis, such as cauterization does. These cases only present a sort of nerve irritation—the primary symptoms of inflammation without any decided structural changes—and the treatment is efficacious through its revulsive action, a possible reflex action through the nerve trunks in correcting the pain and the circulation, and the immobilization of the parts.

From a comparison of the external and internal lesions of ringbone and spavin we find the conditions in the two reversed, the former developing from without to within, and the latter from within to without, the enlargement of the hock being secondary. While some of the distinctions which I have here made may not be mathematically as accurate as you may be led to believe, they appear sufficiently conclusive to warrant the general deductions and to form a conception of the pathology.

Chronic arthritis of the tarsus seems to be more amenable to treatment—ankylosis—with the actual cautery than the same lesion on the phalanges. The cautery can be brought in more direct contact with the seat of the disease; the bones of the hock are porous and vascular; the articular surfaces are covered by a thin layer of articular cartilage and probably more readily exfoliated; the bones are almost immovable and in very close apposition, and have a paleontological tendency to diminution from ossification and a disappearace of the individual bones of the anatomical foot. The last fact may be pertinent from a medico-legal point of view. I read an account of this kind in the *Revue Veterinaire.* The subject was a young mare. When the bones were cleaned several of the hock bones were neatly ossified, although at no time during life, so far as could be learned, was there any knowledge of lameness. I have seen such an ossification of the astragalus and the os calcis in the hock of a horse in spite of the gliding movement that exists between these two bones, and no deformity could be seen on the surface. I know nothing about the animal from which it was obtained. Under any circumstances, a lameness, even though temporary, may accompany such a condition, and we are at sea when we endeavor to locate it.

THE COMPARATIVE VIRULENCE OF THE TUBERCLE BACILLUS FROM HUMAN AND BOVINE SOURCES.[1]

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(*From the Laboratory of the State Live-stock Sanitary Board of Pennsylvania.*)

(Concluded from page 81.)

Comparative Virulence of Bovine Culture H and Human Culture K for Puppies and Pigs when Introduced through the Alimentary Tract.

Puppies. Four puppies, eight weeks old, from the same litter, were selected, two of which received a suspension of milk of bovine culture H and two a similar suspension of human culture K, equal amounts being given on ten days, six days in succession, with an interval of seven days, then four days in succession. The regular food was sterilized milk, bread, and boiled beef.

Only one of the four puppies died, one of the two which received the human culture K, death occurring after fifty-seven days. There was a generalized tuberculosis, most marked in the lungs and liver. The other puppy was killed after eighty-five days. The only lesions found were small cheesy nodules on the surface of one lung, in parotid and mesenteric glands.

The two puppies fed with bovine culture H showed no ill effects whatever, and were killed on the eighty-fifth and eighty-seventh days, respectively. Both were in good condition, the only lesions found being in the parotid and mesenteric glands, which contained minute caseous areas, none larger than 2 mm. in diameter.

Pigs. As with the puppies, four pigs from the same litter, eight weeks old, were taken, two being fed with human culture K and two with bovine culture H, equal amounts of a suspension in sterile water being soaked into bread and given for ten days, with an intermission of only one day. The regular food was sterilized milk, ground oats, bran, and corn-meal.

All four of the pigs died, the average life of the two fed with human bacilli being one hundred and eighteen and a half days against one hundred and a half days for the two which received the bovine culture. One pig of each pair lived one hundred and twenty-three days, dying on the same day. The total difference in gain of weight was only half a pound. All showed post-mortem a generalized tuberculosis.

While some differences were noticed in the extent of the disease in various organs, it cannot be said that these were such as to indicate a greater virulence of one culture than the other. In all the mesenteric glands were extensively diseased, while in one only, fed with bovine bacilli, was there ulceration of the mucous membrane of the intestine. Three of the four showed tuberculous ulceration of the tonsils. The remaining one presented no gross changes in this gland, but microscopically areas of necrosis, apparently in the lymph-follicles, were found, and sections stained with carbol-fuchsin revealed large numbers of tubercle bacilli. The two pigs which lived longest, one bovine and one human, both had extensive involvement of the joints, so that for several weeks before death walking was almost impossible.

The result of this experiment is inconclusive as far as the puppies are concerned, except as showing that they are readily infected through the alimentary tract. The pigs showed practically an equal susceptibility to the two cultures. The ease with which they were infected, and the extent of the lesions produced in so short a time, were both most striking features, and should serve to put farmers on their guard against feeding the swine on milk from tuberculous cattle. In Pennsylvania neglect of this precaution has led to considerable loss in several instances.

Recovered Cultures. The cultures included in Table III. were all recovered from animals which had been inoculated or fed with cultures H and K. Their virulence was tested only for rabbits and guinea-pigs. The most striking thing to be noticed in the results is the increase in virulence in the human bacillus recovered from the hogs K (D) and K (E). The average length of life for guinea-pigs after inoculation with the original culture K was thirty-eight days, while the rabbits were killed after eight months and twenty-three days, showing successfully resisted infection. On the other hand, the culture recovered from the hogs killed guinea-pigs in twenty-nine and one-half and thirty-two and one-third days, and rabbits in seventy-one and one-half and sixty-two and one-half days, respectively, showing a virulence for those animals which corresponds to that seen in bovine cultures.

Culture H (E) was recovered from a nodule on the hand of Dr. S. H. G., who accidentally inoculated himself while making a post-mortem on one of the goats which had succumbed to the original culture H. Particular interest attaches therefore to this culture. No marked difference can be detected in the virulence of this culture as compared with the original.

Considerable difference has been noted in the readiness with which the recovered cultures grew in the early generations. H (A), H (B), H (D) and H (F) all grew vigorously from the start, the three last growing without any stirring of the tissue on the original tubes, while H (G) grew on tubes sealed with paraffin—a result which I have been able to obtain only with the human bacillus, with this exception. The morphology of all the recovered cultures correspond closely to the original.

COMPARISON OF OTHER HUMAN AND BOVINE CULTURES.

(TABLE IV.)

HISTORY OF CULTURES.

Culture F (*Bovine*). Obtained from a large tumor on the diaphragm of a cow which had been slaughtered for beef. The tumor was 13 cm. long and from 7 to 9 cm. in diameter. On the surface were a number of grape-like masses of pearly lustre. On section numerous caseous areas were found, from which an emulsion was made. It contained many tubercle bacilli. A guinea-pig was inoculated intraperitoneally May 16, 1899. Death occurred on June 8th, and from its tissues a second pig was inoculated intraperitoneally. This pig was chloroformed July 31st, and a third pig inoculated in the same manner, which was chloroformed August 21st and cultures made from spleen and omentum. Scanty growth was observed on September 27th. Under the microscope the bacilli were thick, short, and showed little tendency to beading, staining deeply and uniformly. The further history of this culture is given in the paragraph on " Retention of Characteristics in Culture."

Culture Q (*Bovine*). Obtained from the lungs of cow No. 5986. This cow was brought to our department on July 6, 1898, for experimental purposes, being considered then an advanced case of tuberculosis. She was emaciated and coughing badly. Many tubercle bacilli were found in the mucus she coughed up, which were long, thin, and much beaded. She died February 12, 1900. The lungs were infiltrated throughout, many of the areas having undergone caseation and calcification. It was difficult to understand how the animal lived as long as it did. The mediastinal glands formed a tumor 35 cm. long by 15 cm. in diameter, which was cheesy on section. The mesenteric glands were enlarged and cheesy. A guinea-pig was inoculated in the peritoneal cavity on November 15, 1899. On November 30th the animal was killed and cultures made. Growth was observed first on January 10th, and sub-cultures made on the same date. Growth was always scanty.

Culture QQ (*Bovine*). Was obtained from the mesenteric gland of cow No. 5986. An emulsion from the centre of the gland was inoculated into the peritoneal cavity of a guinea-pig February 13, 1900. On March 5th it was chloroformed and cultures made. Growth was observed on April 12th, and sub-cultures were made on April 17th. Growth was more abundant than that on the preceding culture (Q), but still scanty.

Culture T (*Bovine*). Was obtained from milk sent in for examination by a dairyman in Philadelphia. It was inoculated into the peritoneal cavity of a guinea-pig January 24, 1900. The guinea-pig was chloroformed on April 6th. With an emulsion of its spleen two other guinea-pigs were inoculated intraperitoneally on the same date. One of these was chloroformed on April 28th and cultures made. Growth was observed first on June 23d and cultures made the same day. Growth was abundant and luxuriant

Culture U (*Human*). Obtained from a child three years of age, whose death was due to tubercular meningitis. Autopsy. Lungs and bronchial lymphatic glands full of miliary tubercles. Anterior mediastinal glands much enlarged. Spleen extensively involved, liver less so. On abdominal surface of diaphragm were a number of flat, yellow nodules. Mesenteric glands enlarged, and contained old, yellow, cheesy nodules. One small tubercle found in right suprarenal. Purulent and cheesy nodules found in meninges and encephalon. The culture was obtained from mesenteric glands.

The pathologist, Dr. Hand, was uncertain as to the origin of this case.

Guinea-pigs were inoculated intraperitoneally on June 15, 1900. One was killed on July 23d, and with its tissues a second was inoculated intraperitoneally. This was chloroformed on September 12th and cultures made. On October 11th, no growth having taken place, the blocks of tissue were transferred to fresh serum and stirred. On December 4th growth was first observed, and on December 15th sub-cultures were made. Growth has been rapid and abundant.

Culture W (*Human*). Obtained from a child nine months of age, of scrofulous parentage. The cervical glands on both sides were enlarged. Autopsy. A double bronchopneumonia was found. One small tubercular nodule was found on surface of left lung, several at apex of right lung. Bronchial glands not enlarged.

Tonsils normal in size, but glands on each side of pharynx extending in front of and behind the sternomastoid muscle were enlarged, tuberculous, and several contained creamy pus. Three mesenteric glands were enlarged and cheesy; an ulcer was found in the jejunum and another at the ileocæcal valve. Peyer's patches and the lymphatic glands about cæcum were enlarged. Spleen and liver contained tubercles. The mesenteric glands were employed for the isolation of the culture.

This case was considered by Dr. Hand as being probably of tonsillar or pharyngeal origin.

Guinea-pigs were inoculated intraperitoneally on October 5, 1900. From one which died on January, 1901, a second was inoculated intraperitoneally. This was killed March 4th and cultures made. Growth was first observed on April 12th and sub-cultures made the following day.

Culture BB (*Human*). Obtained from a child seventeen months of age. Death was due to tubercular meningitis. Autopsy. Lungs normal, except posterior and part of right upper lobe, which was consolidated, red on section, and had excess of connective tissue. Bronchial and mediastinal glands not enlarged. Spleen, liver, and kidneys show pearly tubercles. Two feet from the lower end of the ileum is an ulcer 1 by 2 cm., the long diameter transverse to axis of gut. Nodules are seen on peritoneal surface. Four small ulcers, two above and two below, are found in the ileum. Mesenteric glands enlarged, cheesy, and some purulent. Meninges show yellow tubercles most marked along longitudinal fissure, in choroid plexus, and over cerebellum. The mesenteric glands were used in obtaining the culture.

This case is considered by Dr. Hand the clearest one of primary intestinal tuberculosis ever seen by him.

Guinea-pigs were inoculated intraperitoneally with an emulsion made from the mesenteric glands on March 9, 1901. One was chloroformed on April 19th and cultures made. Scanty growth on one tube was found in June and sub-cultures made.

The results given in Table IV. show for all the bovine cultures a greater virulence than for any of the human cultures. The average life of the guinea-pigs inoculated with human bacilli was more than twice that of those inoculated with bovine. All the rabbits which received human cultures gained in weight and had finally to be killed, while for the bovine they died and presented post-mortem extensive lesions, the lungs and kidneys being the chief seats of the disease in all animals.

PART II. TESTING THE PATHOGENIC POWER OF TUBERCULOUS MATERIAL OF HUMAN AND BOVINE ORIGIN.

In addition to the study of a number of pure cultures obtained from man and cattle, we have examined the pathogenic power of tuberculous material from the two sources also, making a series of inoculations which are as nearly parallel as possible. The results of these tests are shown in Tables V. and VI. The plan was to inoculate a series of animals with tuberculous tissues rubbed into a smooth suspension, and at the same time to inoculate a number of guinea-pigs with the same, which on their death would furnish material for another series of inoculations parallel with those made directly from the human and bovine tissues. It was believed that the material from guinea-pigs would more nearly represent pure cultures of the respective organisms than would be obtained from the tuberculous organs of man and cattle, and that the two sets of animals would lend themselves to an interesting comparison, besides fulfilling the primary object of comparing the virulence of human and bovine material.

The plan was carried out for the bovine material, but failed for the human, as all the guinea-pigs died within forty-eight hours after inoculation. The second series of animals were inoculated with human material from another source and obtained at a later date. The results, while not entirely comparable, are nevertheless interesting and valuable.

Objections to Use of Tuberculous Material. There are several disadvantages in using tuberculous material which were not overlooked in planning this work. 1. It is impossible to give accurate doses, for although our suspensions may be made of an equal opacity, and counts of equal amounts show approximately the same number of bacilli, there is no way of determining what proportion of these bacilli are capable of multiplication. 2. Material from man almost always contains other bacteria. Our knowledge of mixed infections is too scant to enable us to estimate the part played by those other species in determining the result; whether they inhibit or aid the action of the tubercle bacillus. The same is true of bovine material, although to a less extent, the tuberculous foci being more apt to remain inclosed. On the other hand, infection under natural conditions is always through such mixed material, and this method of inoculation approaches in some degree the conditions we meet in practice.

Source of Bovine Tuberculous Material. The bovine tuberculous material was obtained from a cow six years old, which had shown symptoms of tuberculosis for a long time, and was finally condemned and killed. She showed, post-mortem, a generalized involvement of the thoracic cavity with some invasion of the abdominal organs. In the lungs but little tissue approaching normal was found, and the pleuræ were studded with small nodules. Many of the tuberculous areas in the lungs had undergone caseation. The mediastinal glands were enormously enlarged and caseous. Scattered over the peritoneum were many nodules. The liver was considerably involved, and the portal and mesenteric glands were enlarged and caseous. Other abdominal organs showed no macroscopical lesions. Nodules were taken from the pericardium, mediastinal, and mesenteric glands, lung, and pleura. After thorough trituration in a mortar, each part separately, they were mixed, sterile water added, and the whole strained through cheese-cloth. With this material a series of animals was inoculated, and at the same time a number of guinea-pigs. These all contracted tuberculosis, four dying on the fifteenth day. Portions of their organs were prepared in the same way and used for the inoculation of a second series of animals, as seen in Table V.

Sources of Human Tuberculous Material. This material was obtained from three bodies, the lungs only being used. Two of the three were cases of well-marked acute miliary tuberculosis, the other a case of chronic phthisis, all adults. The material was prepared for injection in the same way as described for the bovine, the suspension being made as nearly of the same thickness as possible. The first series of animals was inoculated with the tissues from one of the cases of acute miliary tuberculosis on August 27th. A number of guinea-pigs were also inoculated, with the object of having their tissues for a second series of inoculations, as with the bovine material, but they all died of septicæmia within forty-eight hours, preventing the execution of this plan. With the exception of the pigs, and the calves inoculated with sputum, the other animals were inoculated from the two cases mentioned above.

Method of Inoculation. In all the animals the injection was made into the lung, the field of puncture being shaven, washed with soap and water, next with alcohol and ether, and lastly with a 1 : 1000 solution of bichloride of mercury. The site of puncture was, for the horses, between the eighth and ninth ribs; for the pigs, sheep, and dogs, between the sixth and seventh ribs; and for the cats, between the fifth and sixth ribs.

CONDENSED POST-MORTEM NOTES.

Horses. Bovine Material. Two Animals. One died after fifty-four days, with loss of 195 pounds; the other was killed after sixty-six days, having lost sixty pounds. In both the disease was mainly in the thoracic cavity. In the one inoculated with material direct from the cow, both lungs were involved throughout. In the other the tuberculous process was confined to the lung into which injection was made, and was marked only near the site of the inoculation.

Horses. Human Material. Two Animals. Both had to be killed. One was entirely normal, not even the point of inoculation being discernible. In the other the tuberculous process was confined to an area 5 cm. in diameter, with the point of inoculation as a centre.

Pigs. Bovine Material. Four Animals. All died, with an average length of life of fifty and three-quarter days. The two which received the bovine material direct lived sixty-eight and one-half days as against thirty-three days for those inoculated from the guinea-pigs. In all the lungs were the chief seat of the disease, all showing an acute miliary tuberculosis of both organs. In the two inoculated directly from the cow the abdominal cavity was invaded to a limited extent, seen only in the mesenteric glands.

Pigs. Human Material. Six Animals. Five died and one was killed. The average length of life of the two inoculated directly from man was eighty-eight and one-half days; for the three inoculated with tissues of other pigs which died the average was twenty-two days. In the first two the lungs were invaded throughout with miliary tubercles, and one showed areas of pneumonic character. In neither was the abdominal cavity involved. Of the four pigs inoculated with material from the other pigs which had succumbed to inoculation with human tissues, three presented a diffuse tubercular pneumonia, rapidly fatal, one living only thirteen days. The remaining animal was normal with the exception of the right lung and pleura. Both visceral and parietal pleuræ were largely covered with nodules 2 mm. to 12 mm. in diameter, many of them caseous. The lung was dense throughout and contained many caseous areas, most marked near the surface.

Sheep. Bovine Material. Two Animals. Both died, the one inoculated directly with bovine material in forty-four days, the other in thirty-two days. Both were considerably emaciated, and in both the disease was confined almost entirely to the thoracic cavity, the spleen being the only abdominal organ involved, and this only slightly so. In both the lungs showed hepatization, more marked in the one inoculated with the tissues of the guinea-pig.

Sheep. Human Material. Two Animals. Both were killed 202 days after inoculation. One was entirely normal, with the exception of an area in the right lung 5 cm. in diameter at the point of inoculation, in the centre of which was a caseous abscess, the pus containing many tubercle bacilli. The second animal was normal throughout.

Dogs. Bovine Material. Two Animals. The dog which received the bovine material direct became markedly ill, much emaciated, and died after 184 days. The pleural surfaces of both lungs were covered with minute nodules, and were almost completely consolidated. In the right lung at point of inoculation was a small abscess, 25 mm. in diameter.

The dog inoculated with tissues of guinea-pig showed little effect from it, and was killed after 245 days. The only lesion found was an abscess cavity 12 mm. in diameter at point of inoculation in right lung, scrapings from the wall of which contained many tubercle bacilli.

Dogs. Human Material. Two Animals. One killed after 229 days. The only evidence of disease was the presence of numerous minute nodules on the pleural surfaces of both lungs and a few on the pericardium. The lungs were normal otherwise.

The second dog began to cough after six weeks, lost flesh rapidly, and died on the sixty-third day. Both pleuræ contained six ounces of sanguinolent pus. The lungs were the seat of an extensive miliary tuberculosis, and at point of inoculation in right lung was an abscess cavity 7 cm. long by 2.5 mm. in diameter. The abdominal organs were not involved.

Cats. Bovine Material. Two Animals. Both became rapidly ill, one dying in twenty and the other in thirty-one days. In both the lungs were the seat of an acute miliary tuberculosis. In the one which received the bovine material direct the spleen contained a number of cheesy areas. In the other the mesenteric glands were enlarged and cheesy. The more rapid progress of the disease in the latter was probably due to its smaller size and the larger dose.

Cats. Human Material. Two Animals. One cat died after two days and has not therefore been included in the averages. The second was killed after 193 days and found to be normal throughout. Not even the point of inoculation could be determined.

Summary. Twelve animals were inoculated with bovine material. Ten of these died, while two survived—the horse and the dog which received the tissues of the guinea-pig.

Fourteen animals were inoculated with the human material, of which eight died and six were killed.

For most of the animals the tuberculous material direct from the cow seemed to be the more virulent. The sheep and pigs were exceptions to this, the pigs notably so, those receiving the tissues of guinea-pigs dying in thirty-three days, as against sixty-eight and one-half days for the others. The averages of life after inoculation given in the table, as well as the greater mortality, show strikingly the increased potency of the bovine material over that from man.

This difference is further brought out by the extent and character of the lesions produced by the one and the other, as shown in the post-mortem notes and in Table VI.

Infection of Calves with Human Tuberculous Sputum. The results of this experiment are included in Table V., the details, which are of considerable interest, being supplied here.

Calf No. 5984, age five weeks, weight 108 pounds, was inoculated intraperitoneally with 10 c.c. of sputum from an advanced case of tuberculosis at the University Hospital, on July 29, 1898. The patient from whom the sputum was obtained was a young adult who had been sick about a year and a half, and had been expectorating freely for one year. A cavity had been observed in the left lung about eight months before the sputum was obtained. Death occurred soon after. Beyond some slight elevation of temperature this calf showed no effect whatever from the inoculation. On November 3, 1898, it was tested with tuberculin, but gave no reaction. When it was killed on January 14, 1899, it weighed 258 pounds, an increase of 150 pounds. It was in good condition and showed no tuberculous lesions in any part of the body. The site of inoculation could not be determined.

Calf No. 8499, age five weeks, weight 131 pounds, was inoculated on July 29, 1898, with 10 c.c. of sputum of a patient at the University Hospital. This patient was an adult male—a miner by occupation. He had been under treatment for nine months. At this period the apices of both lungs were consolidated. He had a cough for two years, lost flesh, and had one severe hemorrhage. He expectorated a large amount of mucopurulent sputum.

This calf showed an elevation of temperature which continued almost without intermission for three months, reaching as high as 105.8° F. in August and September. On November 3, 1898, it was tested with tuberculin and gave a reaction. It was killed on January 9, 1899, weighing 265 pounds, an increase in weight of 134 pounds. It was in fair condition. There was a nodule in the peritoneum at the site of inoculation. In the omentum were numerous calcareous nodules the size of a hazel-nut, and one softened nodule the size of a hen's egg, which contained an inspissated purulent material, and five smaller ones of the same character. The lungs, liver, and spleen were normal, but on the pleural surface of the diaphragm there was a deposit of fibrin which contained several well-defined nodules. On the abdominal surface of the diaphragm was a small amount of grape formation.

Calf No. 8049, age about four weeks, was inoculated on May 16, 1898, intraperitoneally with 10 c.c. of sputum from an advanced case of pulmonary tuberculosis at the University Hospital. The sputum contained many bacilli. Beyond a slight cough, which was noticed in July, it showed no symptoms of discomfort and grew rapidly. It was tested with tuberculin on July 30th and gave good reaction. It was killed on August 1st, weight 340 pounds, condition good; large amount of fat. On the surface of both lungs and on the pleural surface of the diaphragm was a fibrinous deposit. In the cervical lobe of the right lung a few small nodules were found on section. The mediastinal and bronchial glands were somewhat enlarged. The omentum contained a few nodules, and one about one inch in diameter, which had undergone softening, the contents being rich in tubercle bacilli. The spleen showed a number of nodules. About one-half of the mesenteric glands were enlarged and showed cheesy degeneration. An emulsion from the centre of the softened nodule in the omentum and from portions of the spleen were made and 20 c.c. injected intraperitoneally into calf No. 9843, four weeks old, weight 108 pounds, on August 2d. Beyond a slight cough, noticed on October 10th, the animal showed no ill effects from inoculation. It was killed on January 10, 1899; condition good. The omentum was adherent to the peritoneum at the point of inoculation, and contained some ten nodules about the size of a pea. In every other respect the animal was entirely normal.

Calf No. 8050, age four weeks, was inoculated on May 1, 1898, with sputum from an early case of pulmonary tuberculosis at the University Hospital. The sputum contained a large number of tubercle bacilli. Soon after inoculation the temperature of the calf rose and continued high, with some remissions, until it was killed. Its appearance was bad, the coat dry and rough, the respiration rapid. It was tested with tuberculin, but the temperature was too high for results. It was killed on August 1st, weighing 190 pounds. On the surface of both lungs there was a slight deposit of fibrin, and on section a number of hemorrhagic areas were observed in both. The mediastinal and bronchial glands were enlarged and congested. The abdominal cavity contained about twelve ounces of bloody serum. The peritoneum was thickly studded over its entire surface with nodules from 1 mm. to 12 mm. in diameter, fibrous in character. In many places these nodules had massed together, forming tumors, some 5 cm. in diameter, which were dense and fibrous. The spleen contained many nodules, both on the surface and throughout its substance. The whole omentum was thickly studded with nodules from 2 mm. to 12 mm. in diameter, and besides which there were three large masses, dense and fibrous in character, two of which were 15 cm. long by 7 cm. wide, and 12 mm. thick ; and the third 7 cm. long by 6 cm. wide, by 4 cm. thick. The abdominal surface of the diaphragm was thickly studded with nodules, fibrous in character. The mesentery was thickened and contained many nodules of small size. The appearance was that of a typical case of grape or pearl disease. The mesenteric and mediastinal glands were enlarged and somewhat caseous. Twenty c.c. of an emulsion made from these glands, which contained a large number of tubercle bacilli, were injected on August 2d into the peritoneal cavity of calf No. 9846, four weeks old, weight 132 pounds. The animal showed no ill effects whatever from inoculation and was killed on January 10, 1899. A careful post-mortem examination showed it to be normal in all respects.

Summary. Four calves of nearly the same age received intraperitoneally 10 c.c. of human tuberculous sputum from different sources, but in all cases containing a large number of tubercle bacilli.

One showed no ill effects from the injection except a slight rise of temperature, and when killed the autopsy was entirely negative.

Of the other three, two had persistent high temperature following the injection, but only one showed marked illness otherwise. Post-mortem examination proved that all had become infected with tuberculosis, the lesions in two being quite extensive. From each of these two a second calf was inoculated intraperitoneally with an emulsion made from well-developed nodules. In both cases the emulsion was rich in tubercle bacilli, and a large dose (20 c.c.) was injected. The result was absolutely negative in one animal and practically so in the other.

Since both calves received a much larger number of tubercle bacilli in the emulsion than those injected with the sputum, we are led to conclude that the result in the latter was due to a mixed infection which operated to the advantage of the tubercle bacillus.

The attempt to infect calves with human sputum by the digestive tract failed wholly. Two young calves (Table V., Nos. 8074 and 8096) were given from 30 to 60 c.c. of sputum containing many tubercle bacilli on eleven days. Some disturbance of digestion resulted, but when killed no trace of tuberculosis was detected.[1]

Indications for Further Investigation. In the further elucidation of this question, cultures should be isolated from as many cases of primary intestinal tuberculosis as possible, and especially those cases in which there is reason to suspect infection by meat or milk. Having obtained the cultures, it may well be asked whether or not we are in a position to determine positively the origin of the offending organisms. Are the differences which have been noted in culture, morphology, and virulence sufficiently marked and persistent to make differentiation possible? This I doubt. In my judgment much more work must be done before we shall be able to determine the origin of a given culture of the tubercle bacillus by examination of it in cultures. At present we know practically nothing of the influence of the human body on the tubercle bacillus, nor what changes may be induced in its morphology, cultural peculiarities and virulence, by residence in the human tissues, nor what length of time is necessary to induce such changes, if induced at all. In my studies I have, as shown in Table III., recovered the tubercle bacillus, both human and bovine form, horses, dogs, swine, goats, and in one instance had the rare if not unique opportunity of recovering the bovine organism from man after accidental inoculation. These recovered cultures have all been carefully compared with the originals, and while some differences have been observed and noted in the remarks following the table, with possibly one exception, they have not been of a marked or distinguishing character. In the case of the man the bacillus remained in his tissues from January 1st to February 27th, fifty-eight days. The recovered culture was practically identical with the original. This is, however, a shorter time by a great deal than elapses between intestinal infection in children through food and their death, and does not enable us to draw conclusions as to these cases. Like the culture recovered from animals, it indicates that the tubercle bacillus is quite tenacious of its characteristics, as a rule. We have noted constantly that the bacilli found in scrapings from the various organs of the animals inoculated with bovine cultures have been long and beaded, though the culture used was of the short and unbeaded type. The recovered cultures, however, on blood-serum have always resembled the original. In a series of examinations of material coughed up by cows I failed always to find bacilli of what has been described as the bovine type. In fact, the longest tubercle bacilli I have ever observed, except in old cultures, were seen in some specimens of this material. The virulence of this material was greater considerably than human sputum ordinarily is, though the comparison was not made with accuracy.

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[1] This experiment was conducted by Dr. W. G. Shaw, to whom all the credit is due.

Retention of Characteristics in Culture. On blood-serum with 5 per cent. of glycerin the tubercle bacillus from bovine sources will, as a rule, retain its morphological and cultural characteristics for a long time. Culture H has now been grown for two years (July 6, 1901), and is of the sixteenth generation. Beyond an increased vegetation, no marked change can be detected in it. With a single exception (Culture F) the same may be said of all the cultures isolated. This culture was isolated with some difficulty, and so scant was the growth for six generations that I was several times on the point of abandoning it. Only in the sixth generation was growth enough obtained for experimental inoculation. Considerably more growth took place in the seventh, and the eighth grew luxuriantly, since which all sub-cultures have been abundant. From the eighth generation on serum cultures were made on 5 per cent. glycerin-agar, and an abundant growth obtained on this medium in the first transfer.

Coincident with this increase of vegetative power came a marked change in the morphology. From being short, thick, and staining evenly, it is now long, more slender than in the early growths, and shows marked beading. In other words, from being a typical "bovine" culture, it has during the past ten months so changed that it can now pass as a typical "human" culture. It will be observed, by reference to Table IV., that its pathogenic power for guinea-pigs and rabbits was not as great as is usually found in bovine cultures.

Culture in Collodion Sacs. The method of culture in the body of living animals, which has been productive of such brilliant results in the hands of the French, offers much assistance in the solution of the problem before us. It has enabled Nocard[4] to demonstrate the possibility of so modifying the mammalian tubercle bacillus that it becomes like the avian organism in culture and pathogenicity. We are now attempting to modify two feebly virulent human cultures by residence in the peritoneal cavity of cattle.

Culture M was kept for seven months in the abdominal cavity of a heifer, inclosed in collodion sacs, two sacs being used. On removing the sacs but little multiplication of the bacilli was noted. Cultures were recovered directly from the sacs. In the first transfer the cultures grew more rapidly and abundantly than the original culture, but the morphology of the individual bacilli cannot be said to have changed to a noticeable degree. The virulence was not increased. Rabbits were not killed by subcutaneous inoculation. Guinea-pigs died after an average of forty-two and one-third days. A calf inoculated intraperitoneally showed no ill effects and gave no reaction to tuberculin after seven weeks.

Culture Nasua Narica (Coati) of Theobald Smith, inclosed in collodion sacs, was kept in the peritoneal cavity of a yearling heifer for eleven months. On removal there was considerable increase in the growth, especially in one sac. Cultures were recovered from the sacs, and showed some marked changes, especially in manner of growth. On both blood-serum and glycerin-agar the growth was most rapid, at least twice as rapid as usual for this culture. On serum it covered the surface in seven to ten days, as a thick, white, moist layer, almost cottony near the water at bottom. On glycerin-agar the growth was more dry and wrinkled, but very rapid. The bacilli stain more evenly, and are on the whole shorter, though long forms are seen. Guinea-pigs and rabbits inoculated subcutaneously are still living after four months. A calf which received 4 c.c. of a milky suspension in the jugular vein reacted to tuberculin after ten weeks.

The experiment is being continued, the culture recovered from the capsule having been placed again in the peritoneal cavity of another calf.

No conclusions can be drawn as yet, though the indications are that both cultures have become less strictly parasitic rather than more so by the procedure.

Interpretation of Results. Accepting it as proven that the bovine tubercle bacillus has, as a rule, considerably greater pathogenic power than the human bacillus for a large majority of experimental animals, How should we interpret this in regard to man?. Is it fair to conclude that this increase of virulence will hold good for man also? Until the contrary is proven, or until good reason for believing the contrary is shown, it is in my judgment right that this conclusion be held, at least as a working hypothesis. I am aware of the objections to this view that will be raised by some, and acknowledge freely that it cannot be accepted as conclusive. Virulence is, no doubt, a factor which is relative to the subject, and exaltation of virulence for one species does not necessarily prove an increased virulence for other species. Indeed, the reverse is true in some instances.* However, it cannot be denied, as a general rule, that when the virulence of a pathogenic organism is increased for one animal it is increased for all that are naturally susceptible to its action.

The tubercle bacillus is unique in the extent of its pathogenic activity, both by direct experimental inoculation as well as by infection under what may be considered more or less natural conditions. The list of animals in which tuberculosis has been observed in parks and zoölogical gardens is appalling, the discoveries of Dubard[5] and others showing that not even the cold-blooded animals are exempt from this universal scourge. While it may be said of the tubercle bacillus that in cultures in the laboratory it is unusually tenacious of its characteristics, it is certain that in nature it has a wide range of adaptability as a pathogenic agent. Hence for the tubercle bacillus, perhaps more than for any other known microbe, we are justified in believing that an exaltation of virulence for practically all experimental animals will hold good in the case of man also.

The question can be determined definitely only by direct inoculation of man. To do this experimentally is, of course, impossible, consequently we are forced to rely for evidence of this nature on those accidental cases which occur from time to time. It has been my fortune to have three such cases come under my observation, in each of which the infecting organism was known positively to be of bovine origin.[6] Similar cases have been reported by Tscherning[7] and Pfeiffer,[8] the latter ending in general infection and death. To these may be added two cases observed by Dr. M. B. Hartzell,[9] of the University of Pennsylvania, though in both absolute proof of the bovine origin of the offending organism is lacking. Both occurred in healthy men employed by one of our large American railways to clean and repair cars used in the transportation of cattle. In both a well-developed tuberculosis of the skin followed slight wounds of the back of the hand inflicted by broken timbers. In one case the local disease was soon cured and no further trouble resulted. The other, however, ended fatally after about a year, though the infection becoming generalized, with involvement of the lungs. This patient was a robust man, aged forty-four years, weighing 175 pounds, with good family and personal histories. Dr. Hartzell felt able to exclude with reasonable certainty any other source of infection.

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* The streptococcus is said to become increased in virulence for mice by successive passages through these animals, but less virulent for rabbits.

Cases such as these permit us to deny with authority the claim which has been made by certain persons that by long residence in animals of the bovine species the tubercle bacillus becomes so changed as to render it incapable of successful residence in the tissues of man. In all of these instances the bovine bacillus grew and multiplied under conditions known to be most unfavorable to it, with the production of characteristic lesions, and in two of the seven cases gained access to the internal organs, causing death, a result which is unusual when the local lesion is due to infection from human sources. While the number of cases is too small to enable us to draw sweeping conclusions, the indications are that by this mode of inoculation the pathogenic power of the bovine bacillus is at least as great as that possessed by its human congener.

Infection through Food. It will not be necessary here to review at length the reported instances of infection through the digestive tract following the use of food products from tuberculous cattle. Most of these, of necessity, lack precision and are not absolutely demonstrative, though some of them have, as Nocard has said, "almost the value of an experiment."

The well-known observations of Stang,[10] Demme,[10] Gosse,[10] and Ollivier[11] leave little doubt of the power of the bovine tubercle bacillus to infect man through the digestive tract.

Statistical Evidence. The evidence derived from the statistics of tuberculosis on this point is purely circumstantial, yet of such strength as to be most convincing. The compilations of Dr. Tatham bring out most strikingly the fact that in early life some potent factor is at work in causing tuberculosis. In the Harben Lectures for 1898, Sir Richard Thorne speaks of this as follows: "So, also, if you will compare the rates in Tables A, B, and C (pages 5, 6, and 7), and contrast the reduction of 27.9 per cent. which has taken place, under five years of age, during the last forty-five years in all forms of tubercular disease, and that of 66 per cent. in phthisis, with the corresponding one from tabes mesenterica, which only reached 3 per cent., you will see that in considering the latter cause of death we are dealing with a totally different state of affairs.

"The matter, too, assumes a still more serious aspect if we limit ourselves to the first year of life, when milk is most largely used as food; for then we find that the reductions in the rate of death from the various forms of tuberculosis, which reduction has been going on at 'all ages' for about half a century, not only disappears, but is actually transformed into a large increase, reaching no less than 27.7 per cent. This in itself is grave enough, but its significance is still further emphasized when we remember what are the circumstances under which this increase in the rate of death from tabes mesenterica has gone on synchronously with a decrease in that from other forms of tuberculosis."

Evidence of a similar nature is given by Dr. Still,[12] of the Great Ormond Street Hospital for Children, in his analysis of 769 consecutive autopsies of children under twelve years of age, 269 of whom showed tuberculous lesions. Of these 117, or 43.5 per cent., were in children under two years of age, while in the first three years of life 56.5 per cent., or more than a half of the total number, occurred. From his study of the lesions in these cases Dr. Still believes that in 153, or 56.8 per cent., the respiratory tract was the channel of infection, while in 63, or 23.4 per cent., the alimentary canal was responsible, the remaining fifty-three cases being uncertain or were otherwise accounted for. Accepting these figures as given, they indicate strongly that milk, the most largely used food, has a considerable part in the spread of tuberculosis, and justify the conclusion quoted from a report made to the council of the British Medical Association, that "the mortality from tuberculosis in early childhood is not decreasing as it is at other ages in the United Kingdom, and the opinion that this great prevalence of the disease in childhood is due to infection through the alimentary canal by milk from tuberculous cows appears to be well founded."

From Germany comes further confirmatory facts. Widerhofer gives an analysis of 418 cases of tuberculosis in children, showing among them 101 with involvement of the intestine. Of these 43, or 42.5 per cent., were between the ages of two and five years, the period of life when cow's milk forms a large part of the food for children.

Conclusions. In view of the foregoing experiments, and of the evidence quoted, it seems justifiable to conclude—

1. That the tubercle bacillus from bovine sources has in culture fairly constant and persistent peculiarities of growth and morphology, by which it may tentatively be differentiated from that ordinarily found in man.

2. That cultures from the two sources differ markedly in pathogenic power, affording further means of differentiation, the bovine bacillus being very much more active than the human for all species of experimental animals tested, with the possible exception of swine, which are highly susceptible to both.

3. That tuberculous material from cattle and from man corresponds closely in comparative pathogenic power to pure cultures of the tubercle bacillus from the two sources, for all animals tested.

4. That it is a fair assumption from the evidence at hand, and in the absence of evidence to the contrary, that the bovine tubercle bacillus has a high degree of pathogenic power for man also, which is especially manifest in the early years of life.

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THE HORSE'S FOOT.[1]

By James T. McDonough, V.S.,
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After first thanking you for this privilege and apologizing for my inability to properly treat so important a subject, I will state that the object of my paper is to create a discussion on that long-neglected and very important organ—the horse's foot and its shoe of nature, the hoof.

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[1] Read at a meeting of the Veterinary Medical Association of New Jersey, held at Trenton, January 9, 1902.

I know that for several reasons this has always been a very complex subject for veterinarians to deal with. First of all, owners are not conscious of the fact that most lameness and injuries of the limb can be traced to the foot; second, they do not know that a horse is lame unless he is lamer in one leg than in the other—in other words, unless a horse travels with a perceptible limp our most humane people will compel him to go, unconscious of his sufferings; third, it has long been the custom for the care of the feet to be left to the farrier, and as to just where his duties end and those of the veterinarian begin has always been a problem that neither could solve.

As to the first cause, we are responsible for its existence. If we are called to see a lame horse and find him suffering with a sprained tendon or ligament, a soreness of some muscle or muscles, bony enlargement, etc., we do just what any owner or groom would do—simply treat the part affected, which in most cases they have found and suggested the same treatment that we will apply, and oftentimes will themselves apply it with just as satisfactory results. Now we as veterinarians know that the cause of the lameness was in itself an effect, and it is our duty to find and remove its cause, for by so doing we not only prevent a recurrence of the trouble, but we satisfy the owner that our knowledge of those things is superior to his, as the condition can oftentimes be relieved, and permanently so, without the application of any treatment to the parts affected than by simply removing the cause—a service that can only be performed by the veterinarian, who has a knowledge of the anatomy of the foot and limb and the physiology of motion.

The second cause can easily be overcome after having successfully removed the first, for in most cases the owners, after once being convinced that a condition could exist unnoticed that would result in an injury to the limb and lameness, will seek our opinion of their other horses, when we can advise them of their condition, and by our skill relieve them, and allow them to travel with a freedom that will be noticed and appreciated by the owner.

The third cause: It is the duty of the farrier to perform the work of horseshoeing. There is no one who can take his place, and it is far from my object to make little of his service. He is held responsible for all kinds of lameness, and while I do not wish to infer that he is entirely blameless, I do say, with authority, that there would be more lame horses if the judgment he exercises was commensurate to the pay he receives. As to where his duties end and those of the veterinarian begin, why they end just where his knowledge of the subject ends, and it is right there where the veterinarian's begins. Their duties are different and distinct. The one must not become a consulting shoer, and the other cannot be considered a consulting veterinarian. But, to get back to the subject of my paper and make clear its object, we will consider the relation of the hoof to the foot and their relations to the rest of the limb.

The shell, as we know, surrounds and protects the foot just as our shoes surround and protect our feet. It is the shoe of nature in the full sense of the term, and it is fitted so nicely and accurately to the foot as to permit of no alteration in its shape without causing pain and discomfort to that most sensitive organ. If this statement be true, we have only to notice the distorted shape of nearly all hoofs to form some opinion of the suffering endured by those animals that are powerless to relieve it. They are not even allowed to rest that they might lessen it. They manifest unmistakable symptoms of pain. They go sore, point first one foot, then the other. They move along, oftentimes under the whip, with little, short steps; but it is only when the pain of one foot is more intense than that of the other, which causes them to limp, that we respond to their pleadings for relief, and then only to the extent of restoring the crippled limb to its former usefulness.

But our duty does not end there. We should know that the shape of that hoof cannot insure comfort to the foot, and it becomes our duty either to shape it or to direct the performance of that work. The relation of the foot to the limb, and the different parts of the limb to each other, depends entirely upon the shape of the shell. This I wish to make plain.

We know that the possibility of a crooked and flexible column of bones to support the weight of a horse's body depends upon the relation of one to the other and the support they receive from the muscles, tendons, and ligaments that enter into the formation of the limb.

We also know that if we place a column of bones in a vertical position, with the first firmly attached to a base, that the relation of the ends of those bones to each other will depend upon the shape of the base and its position upon the ground, and, as the hoof forms the base of this complete column of sensitive tissue, we can readily see that any alteration of its normal shape can only result in an injury to the limb. But man has altered all of them. You probably have few normal-shaped hoofs in this city to-day, and the only reason that more horses are not lame is because the work they perform does not tax the distorted limb to the limit of its endurance. But while it is only reasonable to suppose that the limbs were intended to perform work proportionate to the other organs—heart, lungs, etc.—yet we know if subjected to violent exercise, such as trotting or running, the legs or feet are the first to give out. In fact, it is generally believed by owners of fast horses that their limbs are unequal to the task of performing this work; and yet I do not know of a single injury to the limb below the knee, unless from some external cause, that the cause cannot be traced to the hoof, and must be removed before the injury can be permanently relieved.

If we are called to see a horse suffering with some injury to a muscle, tendon, or ligament, not traceable to any external cause, we must account for it in one of two ways—that it was either unequal to the task of performing its work, or there was imposed upon it more work than it was intended to perform. As to which it was we can be reasonably sure by examining the same part of the opposite limb and finding it free from injury. But if the work of this part of the limb has been increased, that of some other part or parts must have been lessened to the same extent, and as this transfer of work from one part of the limb to another can only be caused by a change in the relation of the parts to each other, and as we know the relation of those parts depends upon the shape and position of its base—the hoof—it would seem that we would have to seek relief for our trouble at that point.

Again, it is an indisputable fact that owners of some runners have been known to wait for their quarters to break before expecting them to win a race; and there is no question but some of those horses have run faster with broken and bleeding quarters than they could with the hoof intact. Now, anyone knows that the breaking of that hoof and the rupturing of that most sensitive tissue—the laminæ—cause pain to the animal; but the pain it caused was less than that caused by the distorted shape of the hoof, which was responsible for the quarter crack. But, gentlemen, I know that I have taxed your patience to the limit of its endurance, and will conclude by thanking you for your kind attention and requesting a liberal exchange of views upon the subject of my paper.

DEPARTMENT OF CANINE, FELINE, AND AVIAN MEDICINE AND SURGERY.

By Cecil French, D.V.S. (McGill and Munich),
WASHINGTON, D. C.

A SIMPLE METHOD OF PERFORMING ENTERO-ENTERAL ANASTOMOSIS IN THE DOG.

Resection of the bowel is an operation the veterinarian is rarely called upon to perform, but it becomes necessary when a portion of the intestine has lost its viability. Such condition arises most commonly consequent upon acute intestinal obstruction or strangulation.

Removal of more than one-third the length of the small bowel is dangerous to life. Parkes (*Gunshot Wounds of the Small Intestines*) found that recovery occurred most readily when the portion of bowel resected did not much exceed six inches. Experiments demonstrated that extensive resection, where the resected portion exceeded one-half the length of the intestinal tract and where the animals survived the operation, was followed by marasmus as a constant result, though the animals consumed large quantities of food.

Any method of performing this operation demands great precision and attention to detail, but if undertaken in good time offers reasonable hope of success.

A great many devices have been contrived to facilitate anastomosis. Some of them are merely intended to assist in holding the cut ends of the bowel in apposition while sutures are being applied, and take no further part in effecting the reunion. Others allow the operator to dispense with all or most of the suturing, but must necessarily remain in position, holding the cut ends in apposition sufficiently long for reunion to be established. Some of the latter —particularly those which are unabsorbable, like the Murphy button—hold the ends together by compression, thus producing more or less local gangrene, and finally slough away and are voided. This feature of pressure-gangrene production constitutes a pronounced defect, and all mechanical devices which depend upon it for the desired effect are necessarily active irritants and a menace to the reparative capacity of the parts. In fact, the best method must be that which dispenses altogether with the presence of any foreign body, except it be to lend temporary support to the parts during suturing.

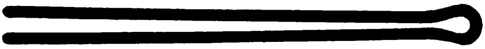
But without the employment of some kind of supporting device the operation is rendered vastly more difficult. When the intestine of the dog is severed the muscular coat immediately begins to contract. The diameter of the tube is often diminished more than one-half. The circular layer, which is thickest, causes the sudden narrowing of the lumen, and the longitudinal layer then coming into play brings about a pronounced eversion of the mucous membrane. This action can be overcome to a considerable degree by gently inserting the tip of the little finger within the lumen of the severed ends, but even then it is a matter of extreme difficulty to maintain the cut ends in apposition while the suturing is being carried out.

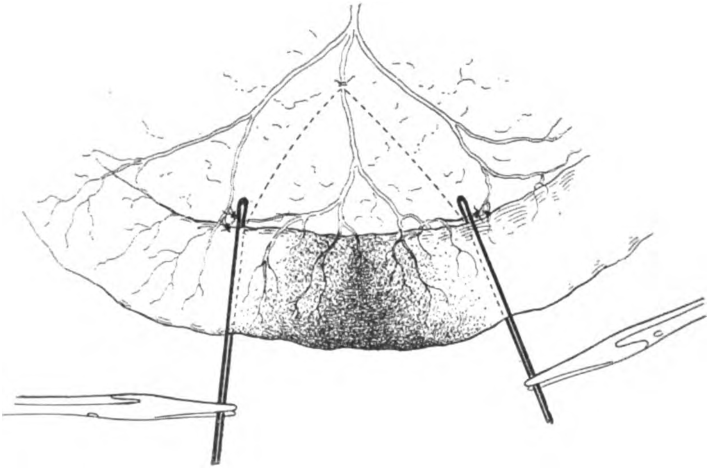
For the veterinary practitioner a method is needed which does not involve the employment of specially manufactured devices, which, excepting in large cities, are unobtainable at short notice. The necessity for performing the operation invariably arises as an emergency; hence it is indispensable that the technique be as simple as is compatible with favorable results, and that any device necessary to facilitate the work be such as may be fashioned out of material at hand and at short notice. With this end in view I have contrived a method which I believe to be peculiarly adapted to canine practice. The sole device of which it is necessary to make use is a lady's hairpin, bent as figured in the accompanying illustrations. Two of these are required, together with three or four pairs of hæmostatic forceps to act as clamps.

For the suturing a milliner's needle, size 8 or 9, should be employed, and the suturing material should be the finest No. 2 black sewing silk. Nearly every surgeon of note who has experimented on dogs recommends silk. Thick catgut remains unchanged not over seven days as a rule, which is not a period of sufficient duration for certain coalescence to take place, and when tied the knots interfere with accurate approximation. Fine catgut disappears in less time, while aseptic silk threads can be tied with greater accuracy, and the knots never become loosened, and its permanent presence never exerts any ill-effect, for it becomes solidly encapsulated. In place of silk, I have used ordinary sewing cotton with good results.

In order to follow each successive step in a complete enterectomy and end-to-end anastomosis by this method, let us suppose that on exposing the viscera a tract of small intestine is found to be in an advanced state of gangrene from the presence of some obstruction or owing to strangulation. The operator must first carefully inspect the local blood-supply, bearing in mind that no mesenteric vessels must be obliterated other than those supplying the area of intestine it is intended to remove. This precaution must be rigidly observed, because it is of the utmost importance that the circulation be preserved up to the very row of sutures. All the circulation possible is needed to effect rapid coalescence of the parts and to ward off further gangrene. The area of intended resection and the blood-supply of the same being mapped out, the mesenteric vessels are first secured by ligature, which is best done by means of a curved needle and fine silk suture passed through the mesentery and around them. The anastomosing loops running near the mesenteric attachment are secured at a point level with the proposed line of resection.

FIG. 1.

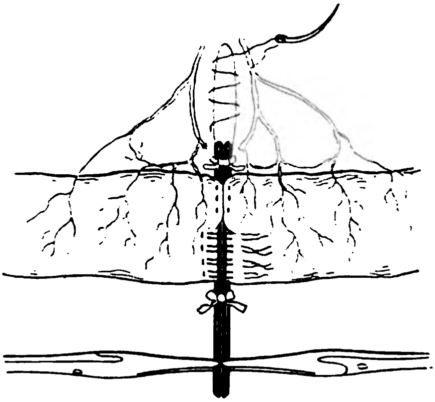




One prong of the hairpin is passed through the mesentery at the upper point of resection, and, together with its fellow, is brought transversely across the gut. The two are clamped together with hæmostatic forceps. The other pin is affixed in the same manner at the lower line of resection. No other bowel clamp is needed, as the lumen is closed from the outset.

The intestine is severed with the scalpel quite close to the clamped prongs of the pin, and the incision extended to the mesentery so as to remove a wedge-shaped portion. The pin effectually inhibits all vermicular action of the wall. The two pins are approximated and tied tightly together, or they may be locked by means of additional hæmostatic forceps. The sutures are now placed on one side, starting at the mesenteric attachment. They are tied before proceeding to the other side. The bowel is turned over and the sutures are applied in the same manner on the other side. The pins are then untied and unclamped and severed at their bent ends with bone forceps or stout scissors, and withdrawn, one prong at a time. The remaining openings are closed with one stitch each, particular care being exercised that the margin is properly turned in at the mesenteric attachment. Finally, the incision in the mesentery is closed with a continuous suture.

FIG. 2.



I have performed this operation experimentally on six different animals, all of which recovered except one, which was only five weeks old, and which survived from the actual operation, but succumbed later to obstruction of the canal owing to the formation of adhesions between the line of coalescence and one side of the wall immediately beyond, whereby an acute flexure was developed.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

PYRAMIDON. Pyramidon is a derivative from antipyrine. It is a yellowish-white powder, insipid, soluble in water, and has properties analogous to antipyrine, but is three times more active; its effects are slower, but of longer duration. Besides preserving the antipyretic virtues, it has the same influence upon the nervous system; but this action is not accompanied by any secondary symptoms, such as malaise and vomiting. In man it is given in doses of 0.25 to 0.60 grammes daily, in solution or in tablets.—*Rec. de Med. Vet.*

CLITORIDECTOMY FOR INCONTINENCE OF URINE. Dr. Gesson reports the following case: Mare, twenty-eight years old, very nervous, with irresistible desire to urinate about every half-hour, the bladder emptying itself immediately. Remembering that the bladder and the clitoris receive their nerve-supply from the same source, and the clitoris being very sensitive and always in a state of erection, I decided upon excision of this organ, as in nymphomania. The trouble disappeared immediately.—*Archiv. Med. d'Hugers.*

ADENOMA OF THE MAMMARY GLANDS. Adenoma, very frequent in the dog and cat, is divided into *true adenoma*, *fibro-adenoma*, and *myxo-adenoma*. In man, Delbet considers these tumors the result of chronic inflammation; they are of slow evolution, non-metastatic, and without tendency to recedivity.

True Adenoma. These are formed of epithelial masses supported by a delicate connective-tissue stroma. They are extremely rare. Leblanc has seen only one authentic case.

Fibro-adenoma. These are frequent and may affect one or several glands; they may become larger than a fist. By reason of their weight they become pediculated, contused, and ulcerate and suppurate. They are of firm consistency; small cystic formations give them a mammellated appearance; their surface, on section, is grayish-white, fasciculated, and shows cystic cavities containing a dark, viscid liquid. Histologically, the adeno-fibromas are formed of trabeculæ of fibrous tissue, which surround isolated or agglomerated nests of epithelial cells.

Vegetating fibro-adenomas are the same as the preceding, in which more or less voluminous vegetations develop on the surface of the cystic walls.

Myxo-adenoma. These are of soft and encephaloid consistency, and consist of mucoid tissue in which are distributed a few glandular neoformations. Cysts have never been seen. They are more rare than the fibro-adenoma, and are always encapsulated.—*Rec. de Med. Vet.*

TWO CASES OF ARYTENECTOMY. Detonte reports two successful operations. The surgical procedure was that usually described. The disease existed for several years in both instances, and the horses were useless for work. Two months after the operation in the first case, and three months in the second, all evidence of roaring under severe exercise had disappeared. The one was a half-bred and the other a Belgian draught-horse.—*Rec. de Med. Vét.*

MUMPS IN THE DOG. In the dog this specific inflammation of the salivary glands, especially the parotid, mentioned by Schüssele and Hertwig, is very rare. Two instances mentioned by Whittaker and Busquet indicate that this disease in the dog may be of human origin. The following conclusions have been drawn: 1. The dog is susceptible to mumps. 2. The disease is transmissible from one dog to another. 3. In the diseased animal there is found a micrococcus which grows in the saliva in the form of a diplostreptococcus analogous to or identical with that found in mumps in man by Ferré and Busquet in 1895, and in the blood in the form of a diplococcus analogous or identical with that described by Laveran and Cotini in the same disease in man in 1893.—*La Presse Med.*

TREATMENT OF "COLD" SHOULDER LAMENESS. After a clinical experience with the individual internal remedies and external applications ordinarily used in shoulder lameness *à frigore* (cold), and especially muscular rheumatism, Trinchera, of the Veterinary School of Milan, recommends the following combination: Sod. salicyl., 20 grammes, or quin. salicyl., 4 grammes; pot. iodid., 5 grammes; tr. aconit., 3 grammes, or ext. aconit., 25 centigrammes; inf. aromat., 800 grammes. This preparation is given once daily in one dose.

The local application consists of liquor ammonia, 500 grammes;

essence of turpentine, 100 grammes, and camphorated alcohol, 200 grammes. This is applied to the shoulder until the skin becomes scabby.

I have also experimented with subcutaneous injections of a saturated salt solution, 10 to 20 grammes, into the shoulder. This is most efficacious when combined with the above antirheumatismal mixture.—*La Clinica Veterinaria.*

INTRAVENOUS INJECTIONS OF CORROSIVE SUBLIMATE IN FOOT-AND-MOUTH DISEASE. This is the heading of an interesting article by Degire, who reviews the treatment of Dr. Baccelli, Minister of Agriculture of Italy. The latter borrowed this method from his clinical experience in man. It consists in the intravenous injections of a solution of bichloride of mercury.

Foot-and-mouth disease was very prevalent in Italy. Municipal veterinarian Croce treated fifty-two cases, and all rapidly recovered; two, but rarely three, injections were necessary. Twenty-six cases were treated in Sardinia, where the disease was fatal, with the same success. In many of the other provinces where the disease was wide-spread the result was the same. According to the Italian reports, the results were "nothing less than marvellous." The observers of Bacelli's treatment have concluded:

1. The intravenous injection of corrosive sublimate rapidly ameliorates the general state of the animal affected with aphthous fever.
2. It reduces the temperature in a very short time; in one case 8.5 in five hours.
3. It prevents, or in large measure reduces, the loss of milk.
4. The local symptoms become abortive, remain limited, and assume a favorable character in a very short time.

This treatment is said to be efficacious in all stages of the disease, and is especially indicated during the prodromic period.

The Minister of Agriculture of Belgium prescribed the above treatment in aphthous fever existing in Belgium, and with good success.

The *solution* employed is artificial serum, the normal salt solution, 7 to 1000. With this serum a 1 per cent. solution of corrosive sublimate is made. The dose is 2 to 4 c.c. in one injection for calves, 4 to 6 c.c. for adults, and 6 to 8 c.c. for bulls and steers. These doses can be doubled without danger. In order to prevent any irritating action upon the vessels, 20 to 30 c.c. of serum may be used. One or two injections are given daily.

The *technique* of the operation is the same as in other injections of this kind. A glass syringe is to be preferred, on account of the corrosive action of the mercury upon metals. The skin should be shaved, washed first with soap and water and then with a bichloride solution.

The veins selected are the jugular and the subcutaneous abdominal (milk) vein; the former is preferred.

The animal is secured by tying the head to a post or tree with a rope passed around the base of the horns.

Intratracheal and subcutaneous methods have also been used, but with less gratifying results.—*Ann. de Med. Vet.*

[In the last (January) number of the *Sch. Arch. f. Thierheilkunde*, Strebel reports some careful and extended experiments made by him for the Swiss Government for the purpose of testing the alleged discovery of Bacelli in regard to the prevention and cure of foot-and-mouth disease by the intravenous injection of corrosive sublimate solution. Strebel reports that the drug has no prophylactic or curative effect.]

COMPARATIVE EXPERIMENTS ON THE PATHOGENIC ACTION FOR ANIMALS, ESPECIALLY THOSE OF THE BOVINE SPECIES, OF THE TUBERCLE BACILLI OF BOVINE AND HUMAN ORIGIN. One culture of bovine origin derived from tubercle in the lung was employed. Five cultures of human tubercle were used. One was from a tuberculous kidney, one from tuberculosis of a sheath of a tendon, one from sputum, one from pulmonary tubercle of a child, and one from pulmonary tissue. The method of injection was intravenous, except in those cases where it seemed to offer difficulties, when the intra-abdominal method was used. Animals experimented on were goats, sheep, cattle, one horse, monkeys, and dogs. For all animals except the horse the inoculations were comparative. There being only one horse, bovine culture was used. The goats, sheep, and cattle inoculated with all cultures became tuberculous, as proven by the macroscopical lesions. The inoculations of test animals such as guinea-pigs, and the presence of tubercle bacilli, were shown by microscopical examinations of the organs and by the existence of the histological alterations of tuberculosis as well as the bacilli themselves in sections. The animals were all tested with tuberculin before the experiment, and in many cases the existence of tuberculosis was proven by the same test following the inoculation.

We are able to state that seven cattle—namely, two calves of six months, three steers of two years, and one of one year and a half, and one calf of seven or eight months—all became tuberculous by the injection of human tubercle bacilli; consequently all cattle subjected to the experiment were infected. The disease was grave and wide-spread only in one animal, in four others it showed regressive tendencies, and in the other two it was progressive. In the two cases inoculated with bovine bacilli a rapid infection took place, localized mainly in the lung, which led rapidly to death. Thus anatomy, histology, and bacteriology agree in showing that the two kinds of bacilli, in spite of their different origin, can cause tuberculosis in cattle, but from bovine bacilli the disease is grave in character and acute in progress, while that due to the human bacilli is usually more benign and chronic; in other words, the bovine bacillus is more virulent for cattle than is the human bacillus. This same difference in virulence was shown for goats as well as sheep, and also for dogs and monkeys. Our experiments show that we can produce tuberculosis in cattle, sheep, goats, dogs, and monkeys with bacilli of human origin; but with the bacilli of bovine origin we produce in the same animal a more grave disease.

Conclusions. I consider myself justified in drawing the following conclusions:

1. The human tubercle bacillus is capable of producing tuberculosis in cattle.
2. The human tubercle bacillus can also produce tuberculosis in other domestic animals—sheep, goats, dogs, and monkeys.
3. The tuberculosis produced in these animals by the human bacillus is generally less grave than that caused by bovine bacillus.
4. We must admit, consequently, that the bovine bacillus possesses a higher virulence than the human.
5. We cannot but believe that this superior virulence of the bovine bacilli—a superiority which is manifest in comparative experiments on cattle, sheep, goats, dogs, and monkeys—will show itself also for man.
6. It follows that man as a factor in the infection of cattle with tuberculosis has much less importance than cattle considered as a factor of infection for man.
7. Consequently bovine tuberculosis from the point of view of human health merits more attention than has been accorded to it heretofore.—Abstract of article by Dr. D. A. de Jong, of Leyden, in *La Semaine Medicale*, January 15, 1902.

GERMAN.

In the *Zeitschrift für Fleisch und Milch Hygiene* for February, 1902, Dr. Kurt Mueller, surgeon, of Effort, makes a contribution to the tuberculosis question. He described two cases of tuberculosis that came under his care. One ten years ago, and the other four years ago.

In both instances the subjects were young healthy men of clean family history, working as butchers. In each case a tendon of the hand was cut across, opening a synovial sheath, the wounds being received, according to the reports of the patients, while at work on tuberculous cattle. An operation was performed in each case, and it was found that the synovial sheath was full of slimy fluid, the wall of the sheath was thickened, as was the tendon itself, and upon them were great numbers of yellow nodules, which were shown by microscopical examination to be tubercles. These tubercles were placed very thickly in the immediate vicinity of the scar, but gradually became fewer at a distance from the scar. In one case the trouble extended from the finger to the forearm, and even at the muscular attachment of the tendon there was still some evidence of tuberculosis. In the second case the tendon was attached to the sheath, and the whole process was confined to a distance of 10 cm. Microscopical examination of the excised and curetted tissue showed the presence of tubercle bacilli.

Both of these men were, so far as could be determined, entirely free from tuberculosis in other parts of the body. Following the operation the wounds healed and the men remained healthy during the time they continued under observation. In considering the history of these cases and the conditions found, Dr. Mueller has no doubt that his patients were inoculated with tuberculosis from cattle.

The budget of the State of Prussia for 1902 contains some figures of interest to veterinarians in this country. Two of the six German veterinary schools (Berlin and Hanover) are in Prussia. For the support of these schools and for the control of the contagious diseases of animals 1,353,974 marks (about $338,400) are appropriated. For the encouragement of cattle breeding, 949,420 marks (about $237,355) are set aside. These appropriations can scarcely be compared to the appropriations to the United States Bureau of Animal Industry, because they are for purposes almost wholly different, and are not made from the Imperial Treasury, but from the funds of the State (Kingdom) of

Prussia. None of the expense of meat inspection, for example, which forms such a large part of the cost of the Bureau of Animal Industry, falls upon the above-named funds, for meat inspection is paid for by the smaller political divisions, the cities and towns.

When these appropriations are compared to those of any single American State or any group of States, the great value placed upon veterinary education and services in Germany, as compared to this country, is at once apparent.

REPORTS OF CASES.

RABIES.

By W. L. Bell, D.V.S.,
BROOKLYN, N. Y.

While visiting a call at a stable in Brooklyn, October 31st, I was informed that the owner had just been bitten by a strange dog, and that the S. P. C. A. had been requested to destroy the animal, which was in the basement of the cellar. Upon investigating I found the dog in complete charge of the place, running around in a restless, uneasy manner, no apparent viciousness, but always on the move. I managed to get a noose over his mouth and a collar around his neck, so that I could tie him up. I found out that the dog, a black poodle, had been running in and out of the stable since early morning, and, aside from snapping at some of the horses (which he did not bite), nothing unusual had been noticed. I countermanded the order to destroy him. He had bitten the man in the left thumb and ball of the hand as he reached down to pat the dog's head, making five wounds—two to the bone, the others only cutaneous, and it was only when he was nearly choked that the dog would let go. I was further informed that he had bitten two dogs in the neighborhood, one belonging to Mr. L., the other owner unknown. If his head was touched with a stick or any object he would snap at it, but paid no attention if touched anywhere else. He would try to drink, but could not, but would refuse food of any kind, no matter how tempting. His eyes had a strange look, but not blood-shot; no bark or howl. Paralysis quite noticeable that evening, and he was unable to use his hind legs the next morning, paralysis progressing very rapidly. He died about 2 P. M. that day (November 1st).

I held a hurried post-mortem the next day, and found the subject a French poodle of fairly good breed, about four years old, and in good general condition. He evidently had been at large in the country, as his hair was filled with burrs and dirt. Alimentary canal generally congested; stomach completely filled with hair and dirt, and contained a canine molar tooth. Small intestines empty, large intestines empty to last part, which had feces of dirt and hairy matter. Bladder full; kidneys, spleen, and liver macroscopically normal. Both sides of heart empty but for small clot of dark blood. Sent the head and neck to the New York Pasteur Institute for examination that afternoon, November 2d, and was notified, November 4th, that the characteristic rabic lesions were found in the ganglia of the vagus, and that a guinea-pig had been inoculated November 2d, which they reported had died eleven days afterward. Their report is annexed. The fox terrier belonging to Mr. L., which was bitten October 31st, was taken to Dr. McLean's Hospital, November 14th; and though no history was given of having been bitten by a strange dog, he was such a suspicious case that Dr. McLean had him isolated for observation, and he died three days later of rabies. The man who was bitten started the Pasteur treatment November 5th, six days after having been bitten, and continued it for the usual period of eighteen days. On the afternoon of that day he was compelled to go home, as he suffered from such muscular pains that he could not stand. These pains continued for three days, when the left facial muscles became paralyzed and the muscles of the left upper and lower eyelids, so that when he slept the eye remained open. The physician in charge diagnosed the case as one of neuralgia, and a few days later, when the right facial muscles became paralyzed, said that there had been a slight stroke of paralysis. At this writing, December 9th, the man's condition is improving, so that he can get out of the house; the eyelid is under control, but the bilateral facial paralysis is still persisting, but not so complete.

It seems to me that this is a case where, had not the man taken the Pasteur treatment, he would have died, before the eighteenth day, of a violent case of rabies, but that the immunity afforded by the preventive inoculation so weakened the rabic condition that the system threw it off, and the man's life will be spared. It hardly seems that a cerebral hemorrhage would affect two identical centres of the brain in different hemispheres, or that a neuralgic condition would give this paralysis.

NEW YORK, November 27, 1901.

DR. W. L. BELL,
BROOKLYN, N. Y.

DEAR DOCTOR: In answer to your request of the 23d inst., we beg to say that the microscopical examination of the vagus ganglia of the dog which you sent us on November 2d revealed the characteristic rabic lesions. This, together with the clinical symptoms which the animal showed, would have been sufficient to establish the diagnosis of rabies. However, the inoculation test was the conclusive proof, the guinea-pig inoculated on November 2d dying in eleven days.

Very truly yours,
NEW YORK PASTEUR INSTITUTE,
PER GEORGE GIBIER RAMBAUD, M.D.

ACUTE ŒDEMA OF THE TONGUE.

By ORR GRAHAM, V.S.,
PORT PERRY, ONT.

THE subject of my paper is one of peculiar interest to me from a practical point of view, and, so far as I have been privileged to read in our scientific works, I have not at present any recollections or record of a similar affection, and although glossitis might be very easily associated in some particulars, yet I claim considerable difference does exist between the two affections.

The name given to the affections by myself (acute œdema of the tongue) does not throw any light upon the subject, yet I have no doubt but many other practitioners have encountered many and similar cases heretofore, and if not, then this paper will be of more or less importance to you; and whatever the primary or premonitory manifestations may have been I am unable to relate, in so far as the owners were not themselves able to notice any change prior to the commencement of the swelling or arrest of proper mastication, which apparently was of rapid or acute origin in each and every instance. As near as I can remember, they were all horses that were under proper care and feed or at work, in good condition and well cared for, nor had they been subjected to any unusual conditions prior to or at time of attack.

Symptoms developed were as follows: General and rapid swelling of the tongue, until in every instance it completely filled the cavity of the mouth to such an extent that the jaws were pressed apart as wide as the muscles of the cheeks would admit and the tongue protruded out some distance, and always accompanied by a profuse and an abundant discharge of a jelly-like fluid in consistency, yellowish in color when coming from the nasal cavities, but not so strong in color from the mouth—probably due in color to the different membranes from which it was secreted. In some cases the head and lips participated in the swelling more or less. General arrest of the natural excretions, from the effect that the affection had upon the general system. Great difficulty in respiration, according to the quantity of fluid accumulated in the nostrils; but if not overabundant in amount in the nasal chambers, then not much stress in respiration, showing that the œdema was not extensive in the epiglottis. The tongue did not appear to be sensitive where pressure was brought to bear upon it. In the more severe cases there were movements of restlessness, which naturally precedes approaching asphyxia or suffocation. A haggard and anxious expression was quite noticeable in most cases. The above symptoms were fully developed in less than twenty hours from the first appearance of the attack. It was not my privilege to see any of them until symptoms were well developed.

Treatment. First cleanse mouth out with warm water containing liquor ferri perchloride, to remove the abundant secretions. Do this before giving a purge of aloes in solution, which is attended by some difficulty; but by well elevating the head and exercising patience and careful attention the solution will gravitate into the throat, from which the animal can swallow it. Give injections to relieve bowels and hasten action of purge; constant and continued fomentations to the swollen lips and tongue, with warm water, to which add some astringent—I prefer liquid ferri perchloride from past experience. It is generally necessary to tie the head well up by two tie straps, thereby giving the circulation a much better chance to aid in recovery, arranging some high construction upon which to place your bath-tub, so as to be the more effectual, the patient receiving the full benefit of the heat as well as the application. I have not seen sufficient benefit derived from scarifications to warrant approval in those cases, neither do I condemn such. Keep the nasal chambers clear as possible of the abundant and thick accumulation, which, in some cases, will admit of being drawn out very lengthy before parting. Encourage action of the kidneys by nitrate of potash, and aid in correcting mucous membranes by soda bicarb. and vegetable tonics, giving drink in sufficient quantities as soon as circumstances will permit. The most of the cases respond favorably to treatment if taken in reasonable time; once the swelling starts to recede, recovery is quite speedy and permanent, the animal being again ready for work in a few days. I have had but two cases die, one of them in about twenty hours from commencement of attack; and so acute was the attack and so abundant and thick the accumulation collecting in the mouth, and more particularly in the nasal cavities, that suffocation could not be averted by the appliances I had at my disposal, being some fifteen miles from home and without a tracheotomy tube.

THE HORSE.

Society owes to the horse a debt of gratitude a thousand times greater than it does to thousands of men who abuse him. He has ministered to progress; has made social intercourse possible when otherwise it would have been slow and occasional or altogether impossible. He has virtually extended the strength of man, augmented his speed, doubled his time, decreased his burdens, and, becoming his slave, has relieved him from drudgery and made him free. For love's sake, for the sake of social life, for eminent moral reasons, the horse deserves to be bred, trained, and cared for with scrupulous care. The teaching of men how to do it has been left too long to those who look upon the horse as an instrument of gambling gains or of mere physical pleasure.

It is gratifying to note frequently in the advertisements of noted breeding farms of thoroughbred cattle that all their animals are tuberculin tested, some going so far as to name the veterinarian who conducts this work.

Weisenburg, Ontario, reports a virulent outbreak of anthrax that has caused the death of one veterinarian and a large number of cattle. It has prevailed at certain periods yearly for ten years. Its true nature not being recognized, the improper disposition of the carcasses have contributed to the maintenance of the disease on this farm.

The activity of the veterinarians in Ohio in invoking the law against illegal practitioners has resulted in finding a great many other violators and suggested their removal to safer fields.

EDITORIALS.

SOME ASSOCIATION WORK.

Hardly a month passes but what we find some association taking a new departure along lines of work that are tending to a stronger and better development of our profession through its more complete organization.

The Manitoba Association recently created prizes for the best papers offered by the new members entering her association ranks, limiting the competition to members who enter during the preceding two years. This is a splendid plan to insure an active interest in association work of the younger members of the profession. The prizes are of useful instruments that should be of double worth to those who receive them, and such a plan might well be followed by many of our State associations.

The publication of all the proceedings of State associations in complete form by one or other of the veterinary periodicals should be a means of stimulating increased interest among the profession of such States so doing, and it will tend to enhance and enlarge the field of journalism by an increased number of readers from whom much encouragement should be received by those who bear the burden of editing and publishing.

The appointment of committees on animal husbandry and press committees in State associations should become very useful bodies in encouraging a closer relation of breeders and veterinarians and of bringing before the public those subjects within our domain that so deeply concern the public welfare.

Recently a local association in Pennsylvania started out in one of its largest cities to determine how far its public institutions sustained by State or municipal aid or under city governmental control furnished to their inmates wholesome and pure milk, and how far they encouraged milk producing on a better scale.

These new lines of work are destined to do much good, and should be encouraged by every member of the profession and extended by every organized association.

COLUMELLA'S PROPOSITION.

We print in this number a communication from Prof. Law, bearing upon the proposition made in our pages as to a better method of dealing with bovine tuberculosis. Several salient features are presented, all of which should be most earnestly discussed that a more satisfactory plan may be evolved and a broader protection guaranteed of all the diverse interests involved. Several other communications will appear in the April number, and we trust that any of our readers who are dealing with this subject will feel free to contribute any news or light on this topic.

MASSACHUSETTS' NEW BUREAU.

In a former issue we referred to the bill to abolish the Board of Cattle Commissioners of the "Bay State" and establish a "Bureau of Cattle" under the Commissioner of Agriculture. Whether it may prove a wise measure or otherwise, it is now on trial. The bill passed both branches of the Legislature, was signed by the Governor, and is now a State statute. From the profession's stand-point in that State one is at a loss to know whether it meets with its approval or disapproval. We pointed out one serious weakness in the bill, in that it did not fix this official chief as a veterinarian, though the control, restriction, and management of all animal diseases was to be under his direction. We trust this defect in the organic law will be remedied in the spirit of its enforcement, and that a veterinarian will be selected who will give earnest and painstaking care to more fully establish a better veterinary sanitary police control system throughout the State and place that Commonwealth among the foremost in our land in the management of all contagious and infectious diseases of lower animals.

SECRETARYSHIPS.

We want to say a word in favor of these important personages, whose work is not often fully appreciated. Wheels are good things; they go around. Well, it is just this work that these hard-working officials do. They make the wheels go around, they regulate their pace, steadying a too fast one here and quickening a too slow one there. They furnish the oil that keeps them running smoothly, they lessen the friction that might burn out the bearings, and this all counts for much in our true progress. The Journal does not believe that any land in the world can produce as much good secretaryship timber as the United States. Our American Association has been thrice blessed with good officials in this post of responsibility. Many of our State organizations have equally efficient ones at their back, and some of our local societies' whole existence rests on the faithful work of these painstaking, earnest officials. While it is a post of honor, it is one of great responsibility, and there is no limit to the work to be done, and sometimes they are more than ill-paid, even in the gratitude that all can express, and too often some more substantial encouragement might be given that would add to the comfort and pleasure of many of these officials. Do not forget your secretary?

ASSOCIATION progress over our land is bearing the richest returns for our profession. State bodies are holding meetings of unusual interest and importance. The programmes have been rich in good things, and every veterinarian should be encouraged and stimulated to greater efforts to discharge his duty in contributing something to this advancement. Minnesota, Iowa, Pennsylvania, and New Jersey have all held unusually interesting meetings since the incoming of the new year.

NECROLOGY.

LOXLA EDWARDS, D.V.S., Assistant District Veterinarian, of Washington, D. C., died on February 25th, after an illness of four weeks of pneumonia. Dr. Edwards was a graduate of the United States College of Veterinary Surgeons, 1901.

The following resolutions were adopted by the Washington Veterinary Association, of which he was a fellow:

The following resolutions were adopted February 27, 1902, by the members of the Washington Veterinary Association in memory of their late friend and fellow, Dr. Loxla Edwards, who departed this life the morning of February 25th.

WHEREAS, The Good God has deemed it wise and expedient to take from our midst our esteemed and honored colleague, Dr. Edwards, late Assistant and House Surgeon of the United States College of Veterinary Surgeons, Washington, D. C.

Resolved, That by the death of Dr. Loxla Edwards we lose a most earnest and devoted member of the profession. Suddenly, when life seemed brightest and health vigorous and permanent, in the twinkling of an eye his soul passed into eternity, and his life, so filled with hopes of usefulness, sank to struggle no more with earth's waves and billows. His life seemed a truly noble one, and the loss is irreparable.

Resolved, That to the family of our deceased member we extend our heartfelt sympathy, earnestly praying that in this sad bereavement they may find consolation in the belief that he has joined his Creator within the portals of heaven.

Resolved, That a copy of these resolutions be spread on the minutes of this association and a copy be forwarded to the bereaved family.

MORRIS H. WALMER,
DR. J. C. HEIDE,
ADAM FISHER,
Committee.

ARTHUR AMES, V.S., of Saltsburg, Pa., a registered non-graduate of Washington County, died in December.

LINDSAY JONES, V.S., a non-graduate registered veterinarian, living at Simpson's Store, Washington County, Pa., died in the latter part of 1901.

COMMENTS ON THE DEATH OF DR. HUIDEKOPER.

I was sorry to see by the JOURNAL the death of your coworker. The kind things said by acquaintances indicate the esteem in which he was held. My sympathies are with you and all intimately connected with him.

J. S. GRANT, V.S., Portland, Mich.

I have just learned of the death of our colleague, Dr. R. S. Huidekoper, a true loss to the profession. It is not a long time since I had the pleasure of reading his lectures in part, enough though to appreciate his high qualities as a veterinarian. Accept my condolence.

A. I. TELMOSSE, V.S., St. Andre, Quebec.

It was with sincere regret and sorrow that I learned of the untimely death of my friend Dr. R. S. Huidekoper; he was a loyal friend and helped the advancement of the veterinary profession. He always had my respect, esteem, and help in his ardent endeavor to help the army veterinarian and the upbuilding of veterinarians. I am of the opinion that his illness was due to his noble work at Washington, for I know that a year ago, when the Army bill was before the House, he was ill then with pneumonia, and ran the greatest risk in his work at that time.

R. H. HARRISON, D.V.S., Milwaukee, Wis.

COMMUNICATIONS.

DISCUSSION OF "COLUMELLA'S" PROPOSITION FOR THE CONTROL OF TUBERCULOSIS.

EDITOR OF THE JOURNAL OF COMPARATIVE MEDICINE, ETC.

SIR: In answer to your personal request for an opinion on "Columella's" proposition, I would say that it is less a matter demanding opinions than one to be submitted to the test of practical experiment. From "Columella's" stand-point it is altogether desirable and could be made a practical success. The fundamental principles involved have already been successfully applied not in Denmark alone, but also in the ranges of the Northwest and in a number of private herds.

But I would submit that "Columella's" view of his particular side of the pillar does not give us an adequate view of the pillar as seen from all sides in succession and as a whole. The conditions met with on some of the other sides may possibly play havoc with the system of "Columella" when the attempt is made to put it in practice. The proposition has to deal not only with the problem of utilizing slightly tuberculous cows and the raising of healthy progeny from them, but quite as much with the disposition of competent and trustworthy men to take up tuberculous dairying as a business and that of the general public toward the consumption of dairy products which are certified to be from tuberculous cows. Some of the necessary attendant conditions which would involve drawbacks to the practical working of the plan might be placed under successive headings:

1. The difficulty of finding the right kind of men to take hold of the dairies of tuberculous animals as a personal investment. Men of good judgment are necessary, but this class is not likely to seek the investment. The tuberculous cows are less thrifty than sound cows, and require better feeding and care to keep them in a condition and up to a milk yield approximating that of the sound herds. Other things being equal, there will be more losses in a tuberculous herd than in a sound one; then as the milk rests under a cloud its value in the market must be considerably depreciated. There is little to encourage a dairyman to enter on such a speculation.

In the Northwest, where the tuberculous animals are used to raise progeny only, where the cost of maintenance is almost *nil*, where the stock live in the open air, and where the matured offspring are sold on their own individual evidence of prime condition and sound health, the case is essentially different. Again, in Denmark, with its general prevalence of tuberculosis in bovine herds, and with the habit of keeping the tuberculous cows on the same farm as the others, only in separate inclosures, the public apprehension is lessened, and there is a ready market for the milk. The experience of Pennsylvania, however, seems to show that in American communities the same measure of indifference cannot be counted on as in Denmark.

2. The concentration in one herd of all the tuberculous cows will, *cæteris paribus*, serve to increase the infection in the building, lessen and depreciate the milk product, and multiply the losses of cattle. True, special precautions may be taken to counteract some of these evil results, but all such enhance the expense of conducting the establishment and lessen the profits or increase the losses of the owner.

3. The office outlay of the government in tracing and recording all sales and other transactions in the tuberculous cattle, and the cost of frequent veterinary supervision and testing, of licensing, branding, etc., will be no inconsiderable item to be added to an enterprise which is already seriously handicapped.

4. The sterilized milk cannot be justly or honorably sold as normal milk. It has the inevitable drawback which attaches to all sterilized or even Pasteurized milk—the constant suspicion of the presence of dead bacilli and the certain presence of minute quantities of tuberculin, which, however small in amount, must be the greater that every cow in the herd has tuberculosis and is producing the toxic matters. To certify this as good milk is a wrong to the innocent consumer which no government surely would be hardy enough and reckless enough to do, lest it should be swept out of existence in a storm of indignation.

To certify the sterilization would be to assign the milk to a lower and cheaper grade, while to fail to certify at all would be to throw suspicion on the whole milk product of the State in which tuberculous dairies are licensed.

These are some of the things that appear to me on the other sides of "Columella's" pillar, and which must fully be considered in entering on his project. Under given conditions his proposal would be a feasible one. In our Eastern States it may be questioned whether it would be profitable.

JAMES LAW.

CONNECTICUT CRITICISES "COLUMELLA."

EDITOR JOURNAL OF COMPARATIVE MEDICINE, ETC.:

I NOTE in the January issue of the JOURNAL an article entitled "A Proposal of a New Plan for Controlling Tuberculosis of Cattle Conservatively." Moreover, I found an editorial soliciting a discussion of the same plan. My interest was awakened owing to my earlier connection with this work and a knowledge of the entire lack of adequate means in this State of preventing the spread of tuberculosis.

The State has, indeed, an individual appointed by the Governor as a Cattle Commissioner, and, as far as the power he is invested with permits him, he is endeavoring to control the disease.

The plan proposed by "Columella" as drafted and explained is worthy of considerable praise, and shows a desire to accomplish the greatest good to the greatest number. It appears to me, however, in the face of many obstacles, practically impossible of adoption, especially as a measure of extensive benefit. Experience in connection with this disease leads me to believe there are a large number of cattle owners who claim not to believe in tuberculin. It is a question whether this claim is based entirely upon the actual fear of the physical injury to live-stock; indeed, I do not believe that this opposing force actually thinks this. That such advocates have considerable weight is developed by the opposition of the dealers, dairymen, and, to some extent, the breeders in this State, whose influence was so great that, in the face of extensive object lessons and no compulsion to an examination of the herds (the work having been done entirely upon solicitation), laws were enacted forbidding any animal to be condemned as tuberculous, for State remuneration, if so condemned by the use of tuberculin as a diagnostic agent. Of course, it may be said that time will remedy this evil. Possibly. I will endeavor to show why it will be difficult. There are several reasons why those connected with breeding, bartering, and dairying wish to prevent tuberculin adopted as a means of diagnosis, and from reasons given out from these several sources will come the impossibilities.

Owners of pure-bred registered stock have learned that by the use of tuberculin valuable animals in their herds react. It is, for them at least, difficult to believe disease exists, so healthy do these suspected animals appear. Now these animals are valuable as producers of a strain of milkers for sale and registration; breeders are loath to part with such animals. Many are held at fancy prices and realizing a comfortable profit; the licensed dealer would be utterly unable to offer sufficient inducements. Moreover, should the breeder divide his business in raising healthy and tuberculous cattle, he at once brands his herd as diseased and causes to himself a considerable financial loss. Again, were he to sacrifice these animals to a dealer, too much would depend upon the integrity of the latter, and then would develop a source of contagion influenced by the thirst for gain.

The ordinary cattle dealer, the principal party that "Columella" proposes to entrust with a license, must become a conscientious dealer. He must be induced to offer enough money for his purchases to influence the dairyman, as well as the breeder, to dispose of his fine milkers. The dairyman has a large milker that has been tested and is shown to be tuberculous; but she appears healthy; he realizes that had no test been performed everything would have remained quiet and a profit was to be realized from her products. Can the licensed dealer pay enough to enable the dairyman to replace her without loss? He must pay enough for the farmer to overcome the chance of losing money after testing the herd. Unless the dealer does this the dairyman must continue to keep a possible source of infection to healthy stock until she has commenced to go dry.

The dealer, it seems to me, cannot offer the dairyman the true producing value, for it is doubtful if he can find a ready market for her or her products, and this brings me to the last great reason of the objection to "Columella's" plan, viz.: "The value of the marketable products of tuberculous cattle as compared with healthy." And the ordinary herds to-day have health certificates, from a producer's stand-point at least, founded on the saying "ignorance is bliss."

Producers of milk from diseased cattle would find a slow market. Creameries could not afford to advertise that their cream is gathered from diseased herds, even though they insist and explain that it has been rendered safe for use, for, competition stimulating trade, someone will at once advertise milk from healthy stock, direct from the cow, and harmless without the sterilization required, and, though "Columella" states that there are no valid grounds for not accepting his scheme, public opinion will furnish a difficult problem.

The consumer must be taught that milk from diseased animals treated is as nice and as valuable as pure milk. Moreover, the extra handling will demand a better price or the producer must be contented with a smaller profit.

Will not the producer handling milk from healthy stock endeavor to protect himself? Will he not have a right to demand laws like those in reference to oleomargarine? He certainly will do so if progressive, and milk of diseased animals will have to be acknowledged. Here again must the public depend too much on the holder of the license. All this cheapens a more expensive article.

The sale of beef is another problem. Under the present laws beef can be obtained with a government guarantee of freedom from disease, this cheapens the market for native diseased flesh and will add another burden to the poor.

Should the body be too greatly diseased the dealer loses a larger proportion of his investment, or will be encouraged to purchase such stock to deliver or sell to the State at a small profit, ridding the State of bad cases, to be sure, but all the while encouraging the spread of disease, dishonesty, and excessive expense to the municipal authorities without systematic work.

RICHARD P. LYMAN, M.D.V.

CORRESPONDENCE.

OFFICE OF GOVERNMENT INSPECTOR OF STOCK,
ANDREW SMITH, F.R.C.V.S., Inspector.
TORONTO, 1902.

EDITOR OF THE JOURNAL OF COMPARATIVE MEDICINE, ETC.

DEAR SIR: In the January number of your excellent JOURNAL, which has just come to hand, I notice an article by Mr. V. P. Smith, V.S., who graduated at the Chicago Veterinary College in 1895, and who attended the Ontario Veterinary College a few years previously. He describes a case of "Dropsy of the Amnion" that he has met with in his practice, and says that during his attendance at these two colleges he never heard this condition mentioned, and that he has no literature on the subject.

Lectures on veterinary obstetrics, in which "dropsy of the amnion" is fully explained, and of which I have seen several cases in both the mare and in the cow, were given by myself in the Ontario Veterinary College at the time Mr. V. P. Smith attended the college, and are still continued, and I must express my regret that he did not hear them.

I have also always been particular in drawing the attention of the students to the distinction that must be drawn between "dropsy of the amnion" and "dropsy of the uterus," which is not uncommon in the cow and heifer.

Both these conditions are well described in Fleming's *Veterinary Obstetrics*, which was published about the year 1877. It is one of the text-books of the Ontario Veterinary College, and much useful information may be obtained from it. There was a new edition of this valuable work published in 1895. I would strongly advise Mr. Smith to add it to his library, as he says that he has no literature on the subject.

C. HEATH SWEETAPPLE,
Professor of Cattle Pathology and Veterinary Obstetrics,
Ontario Veterinary College, Toronto, Canada.

CHICAGO, March 6, 1902.

EDITOR OF THE JOURNAL OF COMPARATIVE MEDICINE, ETC.

DEAR DOCTOR: In the January issue of the JOURNAL, page 49, we note a letter from Dr. J. P. Foster, State Veterinarian of South Dakota, criticising our literature in regard to mallein, or, at all events, so far as the claims made for mallein as a curative agent for glanders.

Dr. Foster states that he has used about 400 doses of our mallein as a diagnostic agent, and concedes that it is of value in that respect; but he condemns us for claiming any curative properties for mallein, this condemnation being based not upon his own experience, but upon the experience of a single layman who obtained some mallein (make not stated) and did not find that it effected a cure. Perhaps it is unnecessary to comment upon Dr. Foster's conclusion except to quote Dr. Law's words, published on page 247 of your April, 1901, issue, namely: "Your correspondent, J. P. Foster, makes a statement which is by no means justified by the facts, and which should be corrected in the interest alike of truth and of veterinary education."

Dr. Foster asks if you or any of your readers can inform him if any of the best authorities on veterinary science concede that mallein is a cure for glanders. As I have been a diligent reader of your JOURNAL and other veterinary literature for a number of years, perhaps I may be permitted to reply to this question. Perhaps it will be conceded that Dr. Nocard, the well-known French veterinarian, is an authority upon veterinary science; and perhaps it will also be conceded that Dr. Roux, of the Paris Pasteur Institute, and who has been connected with the Pasteur laboratories for the last thirty years, is an authority upon comparative medicine.

These two authorities have experimented with mallein as a curative agent for glanders, and have publicly stated that mallein is a cure for glanders. The result of their experiments was set forth in the March, 1896, issue of the *Recueil de Medecine Veterinaire*, published in Paris, France, by the Faculty of the celebrated Alfort Veterinary College.

About the same time I received from the Pasteur Institute a communication on the subject, which communication I transmitted to the American veterinary journals, and it was published—at all events in the *American Veterinary Review*, in June, 1896; but I am unable to lay my hands upon its publication in your own JOURNAL.

Although I have seen several reports from veterinarians who claim to have cured several cases of glanders by the employment of mallein, yet I would refer to the report of Dr. W. L. Langdon, of Omaha, Neb., published on page 246 of your issue of April, 1901. It seems to me that if Dr. Foster had read Dr. Law's remarks above quoted he could not have failed to have read Dr. Langdon's report, as it stares a reader in the face.

We are not engaged in the "sure cure" or even in the "sure preventive" business, and our connection with the Pasteur Institute and our own reputation as a commercial concern would not permit of our making claims that were not well-founded. We plead not guilty to Dr. Foster's charge of being "almost criminal." Perhaps it is unnecessary for us to comment upon Dr. Foster's suggestion that the "Pasteur people," like Roux and Nocard, are "on a par with the horse book," or, in other words, with the so-called quack medicine people. The extenuating feature in Dr. Foster's communication is that he admits that he may be mistaken, and we would therefore respectfully submit that instead of jumping to a conclusion from the experience of a layman he conduct his tests himself in accordance with the experience of Drs. Roux and Nocard, as already published. It would be a joke on Dr. Foster if it were found that the horses treated by Dr. Foster's layman friend swallowed the thermometer, or perhaps the injection of mallein was *per rectum*. Pardon this levity, but I have before me page 52 of your January issue.

I trust that you will give this letter the same prominence which you have given to that of Dr. Foster.

Yours truly,

HAROLD SORBY,

General Manager Pasteur Vaccine Company.

SELECTION.

UNITED STATES DEPARTMENT OF AGRICULTURE, DIVISION OF PUBLICATIONS—JANUARY BULLETIN.

The Improved Respiration Calorimeter for Studying the Nutrition of Man.

About five years ago the public interest was excited in the nutrition investigations carried on as a co-operative enterprise by the United States Department of Agriculture, the Storrs Experiment Station, and Wesleyan University, at Middletown, Conn., by the experiments on the nutrition of men in the respiration calorimeter. The "man in the box" was overwhelmed with visitors curious to see a man housed in an air-tight copper box for from four to twelve days. Each year the experts in charge of the apparatus have made changes tending to simplify its manipulation and increase its accuracy. The original copper box is no more. For the past three months a force of mechanicians and electricians have been at work entirely reconstructing this remarkable apparatus, and it is expected that the finishing touches will be given in a few days. It is believed that the new apparatus will be very accurate. In the original box the heat-measuring devices were so delicate as to permit of the measurement of the heat developed in so slight a motion as rising from a chair, but it is hoped that the new apparatus will record the heat given off in a sudden cough or sneeze or change of position in bed.

The new devices include an unusually accurate thermometer for recording changes of body temperature, an improved cooling apparatus to remove the heat radiated from the body, and a novel method of introducing food and drink into the air-tight chamber without admitting air. This latter device is on the principle of the double-door chamber used in tunnel construction. The chamber between the doors is used for the transitory storage of material, only one door being open at a time.

The double insulated wooden walls have been coated inside and outside with asbestos paper, to prevent any possible danger from fire due to breaks in the numerous electric circuits. The chamber is literally inclosed in a web or network of wires, each with its own independent connection, and all leading to a table outside, where an observer sits continually, day in and day out. An especially elaborate and ingenious switch of a new type, controlling all the electric circuits, is now completed, ready for installation. The object is to regulate the temperature of the interior of the chamber and measure the heat given off from the body of the occupant.

The system of plumbing is hardly less intricate than that of electric wiring, for each wire has its counterpart in a water pipe. The pipes are used to cool the air spaces around the metal box, and the wires serve as a resistance to the electric currents, and thereby heat the air correspondingly.

The box rests on lignum vitæ castors in a track, and when rolled into its casing, or shed, the double back is put in place and the metal box is completely housed. A telephone system permits conversation with the outside world, and aside from what he hears over the telephone the subject is dead to the sound of voices when in the chamber. A large water meter measures the amount of water used to cool the inside of the insulated chamber and bring away the heat generated by the body. Long thermometers, graduated to fiftieths of a degree, record the temperature of the cold water as it enters the heat-absorbing system and the warmed water as it comes out. A new mechanical pump provides for a very constant ventilation. The large double-glass window offers a good opportunity to see the subject inside, and it is seldom that his every motion is not watched either by some assistant or by a visitor to the university laboratory.

During certain kinds of experiments the subject must engage in hard muscular work. The small size of the innermost chamber forbids even ordinary gymnastics or calisthenics, and the work must be done on a machine. The new work machine consists of a stationary bicycle so arranged that its rear tire is brought into contact with a pulley or a small electric dynamo, the pulley being grooved to fit the curve of the rubber tire. The machine is geared to 96, and when riding at the fastest pace the armature of the dynamo runs at 3500 revolutions per minute. The dynamo is magnetized by a current from outside, and the amount of electricity generated by the man pedaling the bicycle is carefully measured. He works eight hours a day, in four periods of two hours each. The equivalent distance ridden on a smooth track would be nearly one hundred miles—a good day's work.

During the years in which the apparatus has been used a large amount of experimental results has accumulated. The work done is already more extensive, more accurate, and more complete than found in any other inquiry. A bulletin of the Office of Experiment Stations will soon be issued, giving the results of a large number of experiments. Another bulletin is now in preparation, which will give still more experiments and summaries of results up to the present date. They throw most valuable light upon the changes of matter and energy which take place as the food is used in the body. The experiments number forty-eight, and were made with five different men. They cover altogether 155 experimental days and nights. The men have had different kinds and amounts of food, and the tests have been made when they were at rest and when they were engaged in more or less severe muscular work. The results are very important in their bearing upon the theory of nutrition and the practical uses and values of food.

AMONG THE COLLEGES.

The Grand Rapids Veterinary College has established a stock farm in connection with the college. Here they purpose raising and keeping on hand a great variety of animals and birds for use in demonstrations and instructions among the students. The *Michigan Veterinary Review* will again resume publication in connection with the college, but under the management of a company.

Dr. William A. McLean has succeeded Dr. William C. Wooton as dean, while Dr. L. L. Conkey, D.V.S., M.F., is general manager of the college. It is confidently believed by those identified with the institution that all these changes will inure to the general good of the college.

The Western Veterinary College has plans out for a commodious college building.

The operating-table at the Kansas City Veterinary College attracted much attention during the meeting of the State Association. Its special points of value—compactness, portability, lightness, strength, cheapness, and ease of manipulation—are generally admitted.

Dr. E. M. Nighbert, of Mt. Sterling, Illinois, and Dr. Frank Linscott, of Holton, Kansas, are matriculates in the third-year class of the Kansas City Veterinary College.

The January meeting of the Students' Society of the University of Pennsylvania Veterinary Department was addressed by Dr. W. Horace Hoskins on "Future Outlook of the Profession." Almost the entire student body were present and evinced a keen interest in the bright future of the veterinary profession as portrayed by the speaker.

MATTERS OF INTEREST TO YOU.

VETERINARY INSPECTION AT THE BOSTON HORSESHOW.

THE Boston Horseshow is to be held under the auspices of the Boston Horseshow Company, April 14th to 19th, 1902. The prize-list is just out, and shows that the usual classes, so well known in previous Boston shows and in the great shows of New York, Philadelphia, Chicago, Kansas City, and San Francisco, will be well provided for. Entries close Saturday, March 22. The show will be held, as heretofore, in the spacious Mechanics' Building, where a ring has been laid down that is 80 feet wide and 140 feet long.

The regular prizes range from $50 to $150 first, $25 to $75 second, and a ribbon to $50 third.

The judges are well-known horsemen from the Eastern States and Canada. Among the Canadian judges is Dr. Andrew Smith, of Toronto.

The veterinarians are Drs. Lester H. Howard, W. S. Plaskett, and Thomas Blackwood. The rules relating to veterinary examinations are as follows:

"11. In case of horses being entered and not exhibited the entrance fees and charges for stalls and boxes will be forfeited unless a certificate under the hand of the exhibitor be lodged with the secretary on or before April 7, 1902, certifying that such non-exhibition is caused by death or contagious disease. Such certificate must be confirmed by a veterinary surgeon.

"24. No person shall enter the space inclosed or set apart for judging, or hold any communication with the judges or examining veterinary surgeons, without permission of the managers.

"27. The company will employ its own veterinary surgeons, who will be in attendance each day of the show, and will inspect such horses as deemed necessary by the judges. No charge for the services to be made to exhibitors.

"28. Horses will be measured in the shoes in which they come to the exhibition, and this measurement shall hold good during the show in all competitions. Special care should be taken that their measurement is correct, as in the case of a wrong entry the animal will be disqualified from taking a prize. Horses will be measured by the company's veterinary surgeons, from whose decision, upon the approval of the presiding judges, there will be no appeal.

"29. All horses shall be examined by the company's veterinary surgeons before entering the show ring. This rule also applies to measurement.

"30. All horses doctored or in any way artificially, improperly, or unfairly prepared or tampered with before coming to the show ring will be disqualified."

It is further provided, under the special rules on judging and instructions to judges, that

"3. No stallion kept for service, or brood-mare, shall be rejected as unsound unless suffering from one of the following hereditary diseases: Roaring, whistling, ringbone, spavin, navicular disease, or cataract.

"4. The results of all veterinary examinations will be regarded as confidential."

Under the conditions governing the hunter classes the following requirement is found:

"All horses to win prizes in the classes for qualified or green hunters must be pronounced hunting sound by the *veterinaries* [sic] of the company, and must carry a minimum weight of 140 pounds."

The soundness of the horses in harness is covered by this rule:

"All horses in these classes must be practically sound, have good manners, and all-around action. Horses doctored or in any way artificially, improperly, or unfairly prepared or tampered with before entering the show ring shall be disqualified."

Among the conditions for horses entered in the contest for a special prize of a silver cup, valued at $300, for the best horse suitable for a gig, it is required that "they must be sound and able to go a good pace." In the entry form there is a statement that must be signed by the exhibitor, wherein he agrees "to forfeit and pay to the company the sum of $100 as and for liquidated damages if the animal or any of the animals I may exhibit are suffering from any contagious or infectious disease."

VALUE OF FARM ANIMALS.

THE following is the substance of a preliminary report from the Census Office:

The Census Bureau, in a report on domestic animals, fowls, and bees in the United States on June 1, 1900, announces that all the domestic animals in the United States have a probable value of at least $3,200,000,000. Of this amount the value of the animals on farms and ranges constitute over 93 per cent., and those not on farms 7 per cent. The total value of all domestic animals on farms and ranges was $2,981,054,115, against $2,208,767,513 in 1890. There was a gain in all parts of the country except in the North Atlantic States, where there was a decrease of horses, sheep, and swine, making a total decrease of 3 per cent. in value.

The live-stock on farms in the United States follows: Calves, 15,330,333; steers, 15,253,182; bulls, 1,315,566; heifers, 7,182,014; cows kept for milk, 17,139,674; cows and heifers not kept for milk, 11,583,253; colts, 1,313,476; horses, 16,952,664; mules, 3,271,697; asses and burros, 95,603; sheep, 61,605,811; swine, 62,876,108; goats, 1,871,252.

Since 1890 the number of sheep decreased everywhere except in the West. The increase there was more than sufficient to balance the loss elsewhere, and made the number of wool-bearing sheep for the nation 11 per cent. greater than in 1890.

The number of horses on farms increased except in the North Atlantic States. The gain over the census of 1890 was 20 per cent. if the colts are included with the totals of 1900, and 13 per cent. if excluded.

The mules on farms increased generally. The dairy cows on farms and ranges in 1900 numbered 4 per cent. more than the milch cows reported in 1890. Under the term milch cows were included in 1890 more cows than those reported in 1900 as "cows kept for milk" or "dairy cows." The real gain, therefore, is approximately 25 per cent.

Neat cattle other than dairy cows increased generally. Swine increased 9 per cent., although there was a slight decrease in the North Atlantic division. In the South Atlantic division the value of domestic animals increased 14 per cent., to $184,152,273 in 1900. In the North Central division the value increased 27 per cent., to $1,529,306,487. In the South Central the increase was 70 per cent., to $598,525,267, and in the Western 93 per cent., to $361,453,353.

Iowa leads all the States in the total value of its live-stock, while Texas ranks second. The former has an investment in live-stock of $271,844,034, and the latter has $236,227,434. Texas, however, has the greatest number of neat cattle, mules, and goats; but the average value of these and other animals being less than in Iowa, the pre-eminence in value rests with the latter-named State.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

THE semi-annual meeting of the Board was convened December 16 and 17, 1901, in Philadelphia, Pa. Minutes of annual meeting approved as read.

The members present were Drs. Sallade, Ridge, and Hoskins. Absent, Drs. McNeil and Helmer, from whom letters were received explaining their absence.

The Secretary reported that Governor Stone had reappointed W. Horace Hoskins for another term, succeeding himself.

There were three applicants before the Board, namely, Drs. Edward Martin, of Pittsburg, and H. H. Collins, of Elizabethville, who were in attendance on their first examination, and John F. McAnulty, of Philadelphia, a previous applicant before the Board.

Dr. Martin exhibited his diploma of the Royal College of Veterinary Surgeons, 1896; Dr. H. H. Collins, of Toronto, 1892. The papers requisite as to character, etc., were filed.

The examinations were conducted by the several members of the Board present. Licenses were granted to the three applicants.

President Sallade reported the prosecution of Wesley Wilt for violation of the State law, his conviction and punishment by fine and costs and subsequent imprisonment for non-payment of fine.

Cases for prosecution were discussed as existing at Columbia, York, Waynesboro, and Tamaqua, and actions directed to be instituted at once against said violators.

Bill for twenty-five dollars ($25) for expenses in connection with the prosecutions of Wesley Wilt and Jabez Burkes was reported by Dr. Sallade and, on motion, ordered paid. Other bills for expenses of the members were submitted and ordered paid.

W. HORACE HOSKINS,
Secretary.

THE ILLINOIS VETERINARY AND SURGICAL ASSOCIATION

THIS Association met in annual session at the Brunswick Hotel, Decatur, Ill., on January 9 and 10, 1902. The meeting was called to order by the President of the Association, Dr. V. G. Hunt, of Arcola, Ill.

The opening address of President Hunt was an exceedingly interesting discourse, replete with interest to the Association.

Dr. J. C. Hoxsey, of Auburn, was elected to membership, following a favorable report from the committee upon his application. President Hunt then introduced Dr. Hoxsey to the Society.

The election of officers for the ensuing year was then held and resulted as follows:

For President, Dr. V. G. Hunt, of Arcola, Ill.; First Vice-President, Dr. C. A. Hurlbutt, of Stonington, Ill.; Second Vice-President, Dr. F. Glassbrenner, of Alton, Ill.; Secretary, Dr. W. A. Swain, of Mt. Pulaski, Ill.; Treasurer, Dr. J. M. Reed, of Mattoon, Ill.

Standing committees appointed by the President for the coming year were:

Committee on Membership.—Drs. S. H. Swain, J. M. Reed, A. Travis, C. A. Hurlbutt, and W. C. Dawson.

Committee on Programme.—Drs. V. G. Hunt, W. A. Swain, and S. H. Swain.

Committee on Arrangements.—Drs. V. G. Hunt and F. Glassbrenner.

Committee on Legislation.—Drs. John Osborne, V. G. Hunt, S. H. Swain, and C. A. Hurlbutt.

An excellent paper by Dr. J. M. Reed, upon the subject of "Metroperitonitis," brought out some very interesting and instructive points with reference to this disease. He was responded to by Dr. V. G. Hunt.

Owing to the absence of a paper assigned to Dr. R. W. Brathwaite upon "Bovine Tuberculosis," the subject was very generally and well discussed by several of those present. Dr. S. H. Swain reported upon a case of herpes circinatus, being a very extraordinary case, which brought forth some very interesting points in the treatment of this disease.

The second day's session was called to order by President Hunt. Much discussion was indulged in by those present as to what should constitute eligibility of members. On motion any action on the subject was deferred until the next meeting.

An able and instructive paper by Dr. V. G. Hunt, on "Cerebro-spinal Meningitis," was well received, and was then responded to by Drs. John Osborne and S. H. Swain.

Dr. W. A. Swain read a very interesting report of a case of "Summer Sores on the Penis," which brought out considerable discussion as to the various modes of treating this disease.

Among the visitors present was Dr. A. Babb, of Springfield, Ill. On motion the location of meeting was fixed in Decatur, and dates in August to be selected by the Committee on Programme. Meeting adjourned until August, 1902, at Decatur, Ill. W. A. SWAIN, V. S.,

Secretary.

GENESEE VALLEY VETERINARY MEDICAL SOCIETY.

THE annual meeting of the Society was held at the Livingston Hotel, Rochester, N. Y., January 17, 1902, it being one of the most interesting in the history of the Society. The meeting was called to order at 11 o'clock by President Dr. T. S. Rich, of Avon, N. Y., and the following members responded to roll-call: W. G. Dodd, Canandaigua; P. I. Johnson, Williamson; G. C. Kesler, Holley; N. N. Loefler, Geneseo; J. C. McKenzie, Rochester; T. S. Rich, Avon; W. E. Stocking, Medina; J. E. Smith, Webster; A. George Tegg, Rochester; Leroy Webber, Rochester; D. P. Webster, Hilton; W. J. Payne, Fairport; A. McConnell, Brockport.

Following the usual routine of business came the election of officers for the ensuing year, which was as follows: President, O. B. French, Honeoye Falls; Vice-President, G. C. Kesler, Holley; Secretary, W. E. Stocking, Medina; Treasurer, Leroy Webber, Rochester. The meeting then adjourned until 2 P.M At the afternoon session came the reading of papers.

Dr. Taylor's paper on "Acute Indigestion and Flatulent Colic" was a very excellent one, and was well received and discussed.

Dr. Kesler opened the discussion on the use of external applications in various diseases, which brought forth a considerable interchange of ideas, which was very interesting.

Dr. N. N. Loefler's subject, "Nasal Gleet," in which he reported a case of very complete impaction of the sinuses, with a thick cheesy pus.

Dr. P. I. Johnson presented a specimen of rupture of the extensor pedis tendon in a young colt, two days old. It was an excellent specimen and well prepared.

After a lively discussion on various other subjects relating to the profession, the meeting adjourned to meet in July.

W. E. Stocking,
Secretary.

CONNECTICUT VETERINARY MEDICAL ASSOCIATION.

The annual meeting of the Association was held at Hartford on Tuesday, February 4, 1902.

President E. C. Ross, of New Haven, called the meeting to order at 3 o'clock, and the session continued until 6 o'clock, when a short recess was taken.

Roll-call was answered by eighteen veterinarians, as follows: Dr. Thomas Bland, P. T. Keeley, and J. E Devereaux, of Waterbury; Dr. E. C. Ross, F. G. Atwood, H. Whitney, of New Haven; Dr. Andrew Hyde, of Norwich; Dr. G. H. Parkinson, of Middletown; Dr. L. B. Judson, of Winsted; Drs. G. F. McGuire, G. T. Crowley, and C. R. Witte, of New Britain; Dr. B. K. Dow, of Willimantic; Drs. R. P. Lyman, F. A. Ingram, P. F. Finnegan, of Hartford; Dr. T. A. Donaldson, of Manchester, and Dr. H. E. Bates, of South Norwalk.

Application for membership was received and favorably acted upon by the Association for Drs. E. H. Lenhert, of Storrs Agricultural College, and Thomas Laden, of New Haven.

Dr. L. Y. Ketcham, formerly of South Woodstock, now of California, asked for a demit, which was granted. Upon proper motion to the effect, the President instructed the Secretary to draft resolutions on the death of Dr. R. S. Huidekoper, of Philadelphia, and also on the death of Dr. W. H. Prophett, of Suffield, and to cause a copy of these resolutions to be sent to the Journal of Comparative Medicine and Veterinary Archives, to the *Veterinary Review*, and also to be spread upon the minutes of this meeting.

The resolutions are as follows:

Whereas, The Connecticut Veterinary Medical Association has learned with profound sorrow of the death of Dr. Rush S. Huidekoper, of Philadelphia, an honored member of the veterinary profession, a man who labored earnestly to improve the veterinary service in the United States army, and devoted his life to the elevation of his chosen field of labors;

Resolved, That by his death the field of journalism has lost a valued helper; and be it further

Resolved, That this Association mourns his loss, and causes a copy of these resolutions to be sent to the Journal of Comparative Medicine and Veterinary Archives, the *Veterinary Review*, and also be spread upon the records of this Association.

WHEREAS, The Connecticut Veterinary Medical Association has lost, in the death of Dr. William H. Prophett, of Suffield, one of its older members; be it

Resolved, That this Association hereby mourns his loss; and be it further

Resolved, That a copy of the resolutions be sent to the *Veterinary Journal* and *American Veterinary Review*, and also be spread upon the records of this Association.

Neither Dr. E. C. Ross, of New Haven, the President, nor Dr. R. P. Lyman, of Hartford, the retiring Secretary, could be induced to accept a renomination.

The election of officers resulted as follows:

President: Dr. Andrew Hyde, of Norwich.

Vice-Presidents: Dr. Thomas Bland, of Waterbury, and Dr. H. Whitney, of New Haven.

Secretary: Dr. B. K. Dow, of Willimantic.

Treasurer: Dr. E. C. Ross, of New Haven.

Board of Censors: Drs. H. E. Bates, South Norwalk; P. T. Keeley, Waterbury; F. A. Ingram, Hartford; G. F. McGuire, of New Britain; and Dr. R. D. Martin, of Bridgeport.

After reassembling, the members listened to a carefully prepared paper by Dr. A. Hyde on "Milk Inspection." Other papers by Dr. J. E. Gardner, of Hartford; Dr. F. G. Atwood, of New Haven; and Dr. Crowley, of New Britain, were postponed owing to lateness of the hour.

Prior to adjournment it was voted to hold the semi-annual meeting at Hartford on the first Tuesday in August.

ANDREW HYDE,
President.
B. K. DOW,
Secretary.

THE VETERINARY ASSOCIATION OF MANITOBA.

THIS Association held its twelfth annual meeting in the city of Winnipeg, February 19th. The President, Mr. W. A. Dunbar, occupied the chair, and the following members were present: W. H. Smith, of Carman; W. R. Taylor, Portage la Prairie; W. J. Hinman, Winnipeg; H. F. Whaley, Glenboro; G. W. Harrison, Cypress; J. McGillivray, Manitou; W. S. Henderson, Carberry; W. Swenerton, Carberry; J. J. Irwine, Stonewall; J. G. Cruikshank, Deloraine; J. Golley, Treherne; C. D. McGilvray, Binscarth; J. Welch, Roland; S. A. Cox, Brandon; J. A. Stevenson, Carman; W. E. Martin, Winnipeg; A. M. Livingstone, Melita; M. Whimster, Hamiota; W. A. Hilliard, Minnedosa; R. D. Scurfield, Crystal City; W. A. Dunbar, F. Torrance, H. D. Smith, C. Little, Winnipeg; D. D. Reid, Hartney; and as visitors, Drs. Simpson, of Yorkton, and Sankey, of Waskada.

The President opened the meeting with a few words of welcome to the members and visitors, and then read an interesting and instructive address upon the progress of veterinary science.

A letter from the Secretary of the Winnipeg Humane Society was read, asking the views of the Association upon the overhead check. After a full discussion of the subject, it was moved by W. A. Dunbar, seconded by Mr. J. A. Stevenson, that this Association, while deploring the fact that some cruelty is inflicted upon horses by excessively high checking with the overhead check, and anxious to do all in its power to mitigate the evil, also admits that the said check can be used without inflicting pain, and in some cases, such as kickers and hard-pullers, is absolutely necessary for their control and the safety of their drivers, and the Secretary is hereby instructed to reply to the Humane Society in the terms of this resolution; carried.

The Resident Secretary of the A. V. M. A. called the attention of the members to the fact that the next meeting of that Association would be held in Minneapolis during the first week in September. Reduced fares would be obtainable from the railways, and all who went could depend upon having a profitable and enjoyable visit. He hoped a large number would take the opportunity.

The Secretary-Treasurer read his annual report, showing a membership of seventy-five and a surplus in the treasury of some four hundred dollars.

The examiners reported that during the year four candidates presented themselves for examination, of which two were successful—Mr. C. D. McGilvray, of Binscarth, and Mr. R. D. Scurfield, of Crystal City, both graduates of the McKillip Veterinary College, of Chicago.

The election of officers for the ensuing year resulted as follows:

President: S. A. Coxe, of Brandon.

Vice-President: A. M. Livingstone, Melita.

Secretary-Treasurer and Registrar: F. Torrance, Winnipeg.

Examiners: W. A. Dunbar, W. R. Taylor, and F. Torrance.

Other members of Council: W. S. Henderson and W. Swenerton, of Carberry.

Auditors: C. Little, W. E. Martin.

The Association passed unanimously the following resolution congratulating Dr. Rutherford upon his recent appointment:

"*Resolved*, That this Association rejoices in the elevation of one of its members to the most important post in the Dominion open to the veterinary profession, that of Chief Veterinary Inspector to the Department of Agriculture, and wishes to place on record its appreciation of Dr. Rutherford's work as a founder of this Association and as one of its most active members, and hereby tenders him its heartiest congratulations, and wishes him every success in his new sphere."

The Association also, by unanimous vote, elected Dr. Rutherford an Honorary Associate.

A resolution was passed to memorialize the Dominion Government to appropriate a sum of money for the investigation of the disease of horses commonly known as "swamp fever," which is continuing to cause great losses in parts of Manitoba and the Northwest Territories.

Dr. W. A. Hilliard read a paper upon an interesting surgical case occurring in his practice. An animated discussion followed, in which the subject of mallein test was also brought up and some interesting experiences related.

In the hope of inducing the presentation of a larger number of papers at the next meeting the following resolution was passed:

Moved by W. A. Dunbar, seconded by J. A. Stevenson, that three prizes, to consist of books or instruments, be offered for competition for the best essays or reports of cases presented at the annual meeting, competition limited to members who have never read a paper before the Association. The meeting to decide on the merits of the papers; carried.

After the usual vote of thanks to the retiring President, the essayist, and the City Council, the meeting adjourned.

The semi-annual meeting will be held in Brandon in July.

F. TORRANCE,
Secretary.

PHILIPPINE VETERINARY MEDICAL ASSOCIATION.

THE veterinarians of the Philippine Islands, to the number of fourteen, assembled at Manila recently and organized a veterinary association under the above name. Most of these members of the profession are from the States, and are located in and about Manila among our American army posts.

The following officers were chosen: President, Dr. W. R. L. Best; Vice-President, Dr. T. H. Tucker; Secretary, Dr. W. W. Richards; and Treasurer, Dr. H. H. Mercke. A constitution and by-laws were adopted and meetings arranged for once a month. A Board of Censors were selected as follows: Drs. Sorenson, Randall, and McKenzie. A Committee on Diseases, consisting of Drs. Hill, Andre, Smith, and Slee. A Committee on Finance, consisting of Drs. Carroll, Randall, and Sorenson. This Association should be of much interest to English-speaking and reading veterinarians as to the diseases that may be prevalent there and possibly transferred to the United States through the intimate commercial relations now being established.

PERSONALS.

Dr. E. J. Creely and wife, of San Francisco, Cal., made an eastern trip to the Atlantic coast in January and February. While in Philadelphia Dr. Creely paid a visit to the office of the JOURNAL.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, spoke in the four States of New York, New Jersey, Delaware, and Pennsylvania during the month of February on the subject of tuberculosis.

The position of Assistant City Veterinarian of Pittsburg has been created, and the salary fixed at fifteen hundred dollars a year. Dr. Henry Mayer has been appointed to fill the position. Dr. Mayer is a graduate of the Veterinary Department, University of Pennsylvania, class of 1900.

Dr. Vaughan Lloyd, of Richmond, Va., met with a painful accident in December through a fractured leg, but is again in practice.

Dr. J. A. Atkinson, of Goodwill Hill, Pa., has met with a serious misfortune in the burning of his home, instruments, books, and considerable money, none of which was saved out of the conflagration.

Dr. B. F. Minnick, of Columbia, Pa., is an ardent admirer of the trotting-bred horse, and has owned and maintained in the stud several standard bred stallions. He is the owner at present of an "Allerton" stud colt and a noted "Wilkes" mare.

Dr. C. E. Hyle, of York, Pa., was arrested in February for violation of the laws regulating the practice of veterinary science. Secretary Hoskins was the prosecutor.

Dr. Leonard Pearson, of Philadelphia, Pa., was a visitor to the "Bay State" in February, spending some four or five days.

Prof. Virchow, the eminent bacteriologist, was seriously ill during the month of February, but is reported convalescent.

Drs. N. Rectenwald and W. E. Wight, of Pittsburg, Pa., were in attendance at the Ohio State Veterinary meeting at Columbus in January.

President Ellis, of the Alumni Association of the American Veterinary College, was present at the banquet of the general Alumni of the University of New York.

Dr. J. C. Kingan, of Pittsburg, Pa., has opened a very commodious veterinary infirmary in the Bloomfield district of the "Smoky City."

Dr. J. O. George, of Camden, N. J., has opened his newly-built veterinary hospital under auspicious circumstances. An equine ambulance is part of his equipment.

Dr. H. P. Eves, of Wilmington, Del., recently purchased a fine veterinary ambulance from Dr. C. W. Boyd, of Allegheny, Pa.

Dr. N. Rectenwald, of Pittsburg, Pa., is very popular among the Hebrew residents of the State of Allegheny and is fast learning to parse the feminine of He-brew as "She-brew."

Dr. Edward Martin, M. R. C. V. S., has succeeded Dr. P. K. Jones at the Vancroft Stock Farm, Wellsburg, W. Va.

Dr. Horace G. Black, of Atlantic City, N. J., has returned to his former location at Wilkesbarre, where he will resume his practice among former patrons.

VETERINARY REGISTER.

[See Editorial, Journal of Comparative Medicine and Veterinary Archives, July, 1901, page 438.]

[In the following list the names and data printed without comment are those furnished to us by postal card with the signature of the individual.

Those with an asterisk [*] are those to whom we have sent, by United States mail, an envelope with prepaid postage and a request for return if not delivered in ten days; as the envelopes have not been returned, we presume that the letter has been delivered, that the individual in question exists, but that he has neglected to return the enclosed postal card with the information requested.—Ed. Journal.]

PENNSYLVANIA.

(Continued from page 816, December, 1901.)

Name.	*Street.*	*Town.*	*College, Graduated.*	*County, Registered.*
Radley, Aaron W.	Broad & High	Bethlehem	American Vet., 1886	Northampton
Ralston, Lewis	Bridge st	Phœnixville	*	Luzerne
Ramson, J. B.	S. Franklin st	Titusville	*	Crawford, 1890
Ranck, Edward M.	422 N. 41st st	Philadelphia	V. D. U. Pa., 1897	Philadelphia, 1897
Rayner, G. B.	141 Fountain av	Manayunk	*	……
Rayner, Jas. B.	135 E. Gay st	West Chester	Phila. C. V. S., 1864	Chester, 1889
Rayner, Thos. B.	Highland av	Chestnut Hill	*	……
Rayner, Thos. C.	Chelten av	G't'n, Phila.	*	……
Raynor, John B.	……	Branchtown	*	……
Reading, A. J.	……	Hatboro	*	……
Reagan, W. J.	……	Tullytown	*	……
Rechtenwald, J. J.	36 Southern av	Mt. Oliver	*	……
Rechtenwald, N.	89 Washington	Pittsburg	*	……
Reed, J. O.	……	Danville	*	……
Reed, J. V.	……	Hookstown	*	……
Reid, Walter	……	Shadeland	*	……
Reig, Vincent	……	Carrolltown	*	……
Reigert, Levi	……	Annville Twp.	*	……
Reinecker, J. W.	……	Wellsville	*	……
Reish, Samuel	……	Pleasant Gap	*	……
Remaley, John	……	Nazareth Twp.	*	……
Rennells, Benj.	……	Coudersport	*	……
Renshimer, V.	……	Pipersville	*	……
Rentschler, H. K.	……	Shartlesville	*	……
Repine, Richard	……	Mahoning Twp.	*	……
Retten, Harvey, M.	……	Ephrata Twp.	*	……
Rhoads, John M.	……	Barbara	*	……
Rhoads, Warren L.	11 E. Baltimore	Lansdowne	American Vet., 1893	Delaware, 1893
Ribble, T. D.	……	Washington Twp.	*	……
Rice, Horace	……	Union City	*	……
Rice, Robert G.	……	Towanda	*	……
Richards, H. S.	6220 Penn av	Pittsburg	Ontario Vet., 1887	Allegheny, 1890
Richards, John	……	Logan Twp.	*	……
Richards, John M.	……	Reading	*	……
Ridge, Wm. Hodgson	……	Trevose	Univ. of Pa., 1888	Bucks, 1889
Riggle, Jos. J.	……	Loretto	*	……
Riker, N. D.	……	W. Nicholson	*	……
Ripple, Theo.	……	Edinburg	*	……
Riter, John	……	Centre Hall	*	……
Ritter, Chas.	1722 N. 19th st	Philadelphia	*	……
Ritter, Henry	……	Balliettsville	*	……
Roberts, Amos B.	……	Blandon	*	……
Roberts, Enoch	……	Fairfield Twp.	*	……
Roberts, Owen B.	……	Blandon	*	……

Name.	*Street.*	*Town.*	*College, Graduated.*	*County, Registered.*
Robinson, Ephraim	……	Clearville	*	……
Robinson, Hiram	……	Robinsonville	*	……
Robinson, Jas. B.	……	Montgomery Twp.	*	……
Robinson, Wm.	……	Broughton	*	……
Robinson, Reynolds	……	Piney Creek	*	Bedford, 1891.
Rodgers, Jas. A.	……	Weaversville	*	……
Roehrig, Wm.	2934 Girard av	Philadelphia	*	……
Rogers, H. G.	……	Washington	*	……
Rohn, J. P.	212 N. 15th st	Philadelphia	*	……
Rohrer, Isaac S.	……	Kingers	*	……
Roll, Albert J.	……	Natrona	*	……
Rook, W. G.	……	Scranton	*	……
Rook, Wm.	124 Linden st	Scranton	*	……
Rose, Warren	……	Rutland	*	……
Rosenberry, John G.	……	Skippack	*	……
Ross, Jas. T.	Frankford av and Allen st	Frankford	*	……
Roth, Philip	……	Minesite	*	……
Rotz, Benj. F.	……	Mowersville	*	……
Rowe, W. A.	1156 Franklin st	Reading	*	……
Roxberry, G. W.	"Owens Track" 72d & Island rd	Philadelphia	*	……
Royer, G. Z.	……	Millbach	*	……
Rubl, J. S.	……	Tylersville	*	……
Rundle, Wm. L.	……	Chapman Quarries	*	……
Ryder, Daniel	184 N. Main st	Chambersburg	Ontario Vet., 1890	Franklin, 1899
Sallade, J. Gill	……	New Ringgold	Ontario Vet., 1894	Schuylkill, 1894
Sallade, James W.	2d & Orchard	Auburn	Ontario Vet., 1883	Schuylkill. 1889
Sands, Harry G.	Main & Everett	Benton	Ontario Vet., 1893	Columbia, 1894
Sasse, E. F.	……	Mars	*	……
Saylor, Jos.	……	Fayetteville	*	……
Schaeffer, C. D.	……	Allentown	*	……
Schaeffer, Jas. D.	……	Fleetwood	*	……
Schafer, Levi	……	Greble	*	……
Schall, H. B.	……	Rural Valley	*	……
Schantz, A. L.	……	Allentown	*	……
Schauffler, Chas.	915 W. Dauphin	Philadelphia	*	……
Scheuldt, Ed.	921 Franklin st	Reading	*	……
Schlegel, Alfred	……	Moore's Twp.	*	……
Schlegel, Daniel	……	Moore's Twp.	*	……
Schleicher, L. F.	……	Riegelsville	*	……
Schmoyer, W.	……	Breinigsville	*	……
Schneider, F. H.	3512 N. 11th st	Philadelphia	National Vet., 1896	Schuylkill
Schoch, J. C.	……	Middleburg	*	……
Schireman, A. E.	……	Dushore	*	……
Schreiber, A. F.	62d & Elmwood	Philadelphia	*	……
Schroeder, G. P.	……	Bower's Station	*	……
Schultz, Jos. S.	……	Zionsville	*	……
Sebastian, Geo. B.	……	Rehrersburg	*	……
Secrist, Samuel	……	Warren Twp.	*	……
Sedan, Simon, R.	……	Delaware Twp.	*	……
Seeley, Oscar,	Aldine Hotel	Philadelphia	*	……
Seitter, J. B.	3528 Kensington	Philadelphia	*	……

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THE JOURNAL
OF
COMPARATIVE MEDICINE AND
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ANTHRAX IN A HORSE.[1]

BY W. HAMILTON, V.S.,
BOONE, IOWA.

THE subject of this report was a bay gelding, about seventeen years old, in good condition, weighing about 1300 pounds, and having a previous history of good health. On November 9, 1901, the horse was noticed to be a little stiff in the left hind leg, but no swelling or fever was perceptible to the owner. The appetite was good up to the morning of the 10th. At that time the owner noticed that the animal was unable to stand around in the stall, and was terribly swollen over the left hip. About the centre of the swelling was a small, round hole, about the size of a puncture made by a shingle-nail, from which was exuding a dark-colored fluid mixed with gas and having the disagreeable odor of decaying tissue.

I arrived at the place about 11 o'clock, and found the subject standing on the barn floor, with the left hind leg flexed at fetlock joint, so that the front part of the joint was nearly touching the floor. There was a twitching of the muscles back of the shoulders and in the flank of the right side, and a peculiarly anxious expression of the face. Temperature was 103° F.; pulse 70 and wiry. At intervals of from five to twenty minutes there was violent straining, as if to expel either water or feces, although there had been natural passages previous to the straining. The swelling over the left hip extended from the anterior border of the ilium to the hock joint, and was cold and insensible. I made a couple of deep incisions in the swelling, but could not discern the least evidence that this gave him any pain. The swelling resembled the swelling of blackleg in cattle, only it was more tense, and the crackling of air under the skin could not be induced by pressure, although there was gas escaping from the hole before described and from the incisions made by the knife, along with a dark red liquid, which was of a very disagreeable odor. About three o'clock in the afternoon the horse sank to the ground and lay flat upon his side most of the time, except when the spells of tenesmus would come on, when once or twice he got up on the front legs, but never made any attempt to raise himself behind. He continued about the same until seven o'clock of the 10th, when he succumbed.

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

There was no treatment of any kind prescribed. On the 11th I went to the place with the intention of making a careful post-mortem examination, but the smell and surroundings were almost unbearable, so I was content with a very superficial examination. The external appearance was much the same all over the body as the left hind leg had been the day previous, the swelling extending over the entire body, the skin being so tense as to cause it to rupture on the median line and around the rectum and sheath. After putting on rubber gloves I opened the body along the median line. There was considerable serum in the connective tissue. The kidneys were very soft and almost ready to break down. The spleen was very much enlarged for two-thirds of its length, and dark colored. I removed and took away with me a piece of the spleen and the liver. From the blood squeezed out of the spleen I inoculated a rabbit, which died in less than twenty-four hours; I also prepared two specimens for the microscope. These were colored with methylene blue. Both Dr. Lindahl, a physician of Boone, and myself examined them, and were satisfied that there were present plenty of anthrax bacilli.

DISCUSSION.

Dr. Gibson said the symptoms described were not those of anthrax, and that he could not accept the diagnosis of anthrax. At the request of a member he described briefly the symptoms of anthrax in the horse as seen by himself.

Dr. C. E. Stewart reported a very interesting experience with anthrax within the past two years. Two years ago eleven cows and twenty hogs died suddenly. On investigation he made a diagnosis of anthrax. These animals were infected by feeding in a pasture over which a cow, which had died suddenly of what he supposed was anthrax, had been dragged. He vaccinated the other animals on the farm, and the disease did not spread further. Last year a cow died of what he supposed was anthrax. The carcass was allowed to lie unburied in the pasture. Later four horses were put into the pasture. They made a resting-place of the spot where the carcass had lain. Within a short time they all became sick, showed symptoms of anthrax, and died within a day. Three dogs that had eaten of the carcasses took sick, and two of them died.

CHRONIC ATROPHIC ORCHITIS IN A BULL.[1]

By H. C. Simpson, D.V.S.,
DENISON, IOWA.

In the spring of 1901 I was called to see a valuable bull, Tenth Laird of Estell, property of Mr. McHenry. Accompanied by Dr. Gibson I examined the animal, and found the left side of the scrotum enlarged. It was about eight inches in diameter at the base, and on warm days it was said to hang nearly to the ground. It was hard, tense, and not tender to pressure. The right side of the scrotum and the right testicle appeared normal, except that it also was hanging somewhat lower, the other side pulling it down.

The cause assigned for this condition was that the bull was supposed to have been kicked by a negro attendant about one year previously. The animal had been shown the previous summer with this enlarged testicle at a number of State fairs, and had won continuously; but the condition was fast becoming worse, and it was evident that something had to be done. On account of the value of the Tenth Laird—Mr. McHenry having paid $1200 for him—he hesitated about advising castration, as neither of us had heard of a case where the animal's usefulness as a sire was preserved after removal of one testicle, so at that time we advised iodide of potassium, one drachm twice daily, until iodism was produced, the administration then to be discontinued and resumed again shortly. No corn was to be fed while under treatment. An iodine ointment was also to be applied twice daily externally and well rubbed in. The ointment was made by rubbing up the iodine crystals in sulphuric ether and then mixing with lard. This form of medication was given a thorough trial, but with no good results that we could see, so it was decided to operate. The animal was prepared by dieting a few days. Owing to his size—2100 pounds—we were at a loss to know how to cast him, but finally decided to use an ordinary casting harness and side lines. In addition to this we looped a rope around his body, all of which came in handy, as the animal broke the harness. There was plenty of help, but he gave all of us a tussle before he went down. The scrotum and surrounding parts were thoroughly disinfected with a chloronaptholeum solution. The instruments were immersed in a bucket of the same solution. A puncture was made through the skin near the body, and a trocar and canula inserted full length toward the external inguinal ring, but nothing was found. The skin was normal, but the subjacent tissues were very much thickened, there being one and one-half inches of newly-formed tissue to go through before reaching the testicle. The connective tissue around the testicle was broken down with the hands. One end of the écraseur chain was put around the cord as high up as possible, and after rendering fairly tight, the cord, which was over one inch in diameter, was ligated; then the chain was loosened and slipped down toward the testicle a short distance, and again tightened until the cord was cut in two. Afterward all loose tissue was removed, the wound was washed out thoroughly, packed with cotton saturated in chloro-naptholeum solution, and the animal allowed to rise. After-treatment consisted in daily flushing out with chloronaptholeum solution. The wound healed well. The other side of the scrotum has contracted to normal shape, and a person seeing the bull now would never know that anything had been wrong with him. In regard to his breeding it may be said that he had sired four good, strong, healthy calves before being operated upon. Last autumn after the operation he served a number of cows, and has apparently impregnated them all, as none has come into heat since being served.

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

The testicle was packed in a box with ice and shipped to Dr. Repp, at the Iowa State College, who has examined it and can give the results of his examination.

DISCUSSION.

Dr. Neiman said that he has under his care a bull suffering in a way similar to Dr. Simpson's case, but that he has not been able to obtain the owner's consent to castration.

Dr. Repp described the microscopical appearance of the testicle and the capsule of connective tissue surrounding it. He stated that the disease was neither actinomycosis nor tuberculosis.

Dr. Gibson described the operation, saying that it was much more difficult than castration when the testicles are normal.

Dr. Heck said that a steer under his care suffered from a necrotic process involving the sheath and skin of the abdomen, which he thought was induced by foulness of the sheath. As a result the sheath and an area of skin about fifteen inches in diameter became separated and was cast off. This mass weighed over thirty pounds. The wound healed, and the steer was sent to market in good condition a month later. The scar was hardly noticeable.

Dr. C. E. Stewart had a similar case.

Dr. D. H. Miller related an experience with abscess of the sheath of a bull which extended to the testicles and set up an acute orchitis. Relief was had by opening the abscess.

URETHRAL CALCULUS.[1]

By E. G. Marten, M.D.C.,
SCHALLER, IOWA.

On an October morning Mr. J. B. Harris brought to me a horse that he said could not urinate. On examination I found the bladder distended with urine and the urine dripping from the penis. On trying to pass the catheter I found it difficult, but finally succeeded. On taking out the catheter some small stones followed, but the big ones remained, and as I could not reach them with my forceps I decided to operate. It being Sunday, Mr. Harris wished me to wait until the next day. The following day I passed the catheter and withdrew the urine, and then prepared for the operation. The horse was cast as for castration. The part was washed with castile soap and water and with a 1 to 20 solution of Pearson's creolin. The skin was then rendered tense by the thumb and finger of the left hand, and an incision was made with the scalpel in the median line in the perineal region; then with a large splinter forceps I extracted twenty-five calculi, from the size of a large pea to the size of a large walnut. After washing thoroughly and putting three sutures into the incision in the urethra and one in the skin the animal was allowed to rise. The wound healed nicely, and the animal made a complete recovery.

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

DISCUSSION.

Dr. S. H. Bauman said that on May 28, 1901, a roan mare, about eight years old, was brought to his barn. The history as given by the owner was that she was unable to hold her urine, and that he had owned her for a year or more, during which she worked well every day, and was always in good flesh and easily kept. Her coat was always glossy, she had good life and ambition, and looked to be in the best of health. The owner told me he had to wash her tail every day or so, on account of the disagreeable odor of urine. I proceeded to make an examination. I inserted my hand into the vagina, and felt a tumor in the bladder as large as my two fists. I inserted a probe, but could feel no calculus. I also inserted a pair of lithotomy forceps and probed with them. I then told the owner that all I could do was to cut on the tumor and find what was encysted, and that probably we could effect a cure or better the condition of the mare. With his consent I proceeded to do so. I used creolin solution and thoroughly cleansed the parts. I then took a short castrating knife with a hooked blade, and made an incision about four inches long, starting on a line just anterior to the meatus urinarius, and inserted my hand through the opening. I cut down on the tumor and found the calculus encysted. I carefully dissected around the calculus and removed it as well as another smaller one which lay in the same sac. The growth around the calculus was about an inch to an inch and a half thick, and resembled superfluous granulations as seen in an open wound. It was very vascular, and the hemorrhage was diffuse. I had a loss of perhaps two quarts of blood during the removal. The calculus is almost eleven inches at its greatest circumference, four inches at its greatest diameter, and weighs almost thirteen ounces. I now exhibit it to you. There are four or five more of the same nature in the bladder of this same mare, but I wanted the mare to live, so stopped with this one. In conclusion, will say that I dressed the wound and let the mare stand for an hour. Her owner drove her home the same day, a distance of ten miles, where she has worked right along ever since. The only difference seen or benefit derived from the operation is that she is able to retain her urine a little longer than before. Probably by the time of our next meeting I will be able to give you more on this same subject, as I expect to operate again this spring.

A COW CASE.[1]

BY G. P. STATTER, V.S., M.D.V.,
SIOUX CITY, IOWA.

I WAS called at 9 A.M. to see a Jersey cow, seven years old, heavy milker when fresh, due to calve in two weeks. At last calving she gave birth to twins. The services of a veterinarian were required to assist delivery, following which, according to the attendant's story, she suffered a mild attack of parturient apoplexy.

The history of the present attack was that she had not been out of the stable for two weeks, and had been fed on straw and corn-fodder. The night previous she had not seemed well, had refused her feed, was very uneasy, and kept paddling with her hind feet, but finally laid down and seemed easy. I found her down, and if I had not known that she had not calved I would have at once said that it was an attack of parturient apoplexy. She was lying with her head in the flank, and on straightening the neck and releasing it it would return as before; eyes were dull, the mouth open, and saliva dripping from it; breathing suppressed, with occasional moaning; nothing had passed from the bowels or bladder since the previous day; there was almost complete coma and partial or complete paralysis of deglutition. I carefully gave a capsule containing half a drachm of croton oil, which I could feel pass down, and administered stimulants in the same way. I emptied the bladder and rectum, had her braced up on the sternum, and well clothed. I left a mixture containing nux vomica and ammonium muriate, with instructions to turn over every four hours. Calling again at night, I could see no change. Relieved the bladder and found the rectum empty, though the animal had passed nothing. The next morning the patient was still down, but had a free evacuation of the bowels, which was very fetid. There were signs of returning consciousness to the extent that the cow was able to eat and drink a little. About noon she made an effort to get up, and with a little assistance did so. When I called that night I found her still standing and apparently well. She calved within three weeks without further trouble.

From the history, symptoms, and results of treatment, What should have been the diagnosis?—ante-partum paralysis, parturient apoplexy, or results of improper treatment?

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

DISCUSSION.

Dr. Repp said that he was satisfied the case was one of parturient paralysis, although this disease is rare before parturition.

OPEN JOINT.[1]

BY J. THOMSEN, V.S.,
ARMSTRONG, IOWA.

ABOUT December 1, 1901, a well-bred Percheron mare had, by kicking over a barbed-wire fence and becoming fast, received a wound in the anterior part of the tarsal joint. Considerable force had been used by the animal in attempting to free itself until it was finally assisted by its owner. The wound was in a horizontal direction, not over one and one-half inches in length, and seemingly not very deep. As there was no perceptible hemorrhage, and the mare walked as well as ever when led to the barn, the matter was thought to be of minor importance.

Upon a neighbor's advice a quantity of dry or air-slaked lime was pressed well into the wound daily. The mare was led a short distance to water twice a day, and showed no discomfort whatever for the first four days following the injury, but on the morning of the fifth day there was a change. She appeared much distressed, showed partial loss of appetite, and scarcely any weight could be carried on the affected limb. The owner, living at some distance from here, watched this condition for three days, and then asked for my assistance. As soon as seen I considered the case quite hopeless. This opinion was due somewhat to previous experience, having seen a number of similar cases. I always had felt justified in advising their destruction, which, as a rule, would be carried into effect.

There was a profuse flow of synovia from the opening, slightly to the inside of the median line, but which, on careful examination, appeared to extend backward and inward, possibly under the lower border of the tendinous slip of the flexor metatarsi which attaches to the cuneiform bone. A portion of the anterior border of the large cuneiform was felt to be devoid of covering and very rough. The animal was in the standing posture. The affected limb carried no weight whatever, but the most of the time was held a few inches off the floor, and constantly moved backward and forward in a dangling manner. She took but very little food, presented an anxious countenance, accelerated breathing, and a tucked-up abdomen. The circulation was considerably disturbed, with some elevation of temperature. The owner would not listen to my advice, but insisted on some sort of treatment. A dose of morphine sulphate was given, and later several doses of antifebrin were given at regular intervals. As to the wound treatment, I know of nothing effectual that I have ever employed, but having been impressed favorably with reports on the uses of the salt of silver in similar conditions, I concluded to use it here. Silver nitrate in solution of 1 to 125 was injected into the opening liberally. The exterior of the wound, which had at this time bulged out and become three or four times as wide as it was originally, was well sterilized and dusted over with an antiseptic powder, over which was placed absorbent cotton and a bandage—the latter applied loosely, yet well enough to keep the cotton in place. Slings were tried, but being objected to by the animal, a sort of frame was built around it, having two upright posts, two and one-half feet apart, immediately behind the animal. A cross-piece well wound with cloth was placed between the same and about three feet or more from the floor. The patient very soon discovered the comfort obtainable from this, for on the second day it rested for hours with its haunches pressed against the beam, finding great support in the contrivance. The wound was dressed regularly every six hours as above described, thus requiring attention during the night. The synovial discharge became perceptibly less on the third and fourth days, and on the seventh day had entirely ceased. The symptoms disappeared gradually and the appetite became excellent. An abscess now formed on the inner aspect of the joint. This was lanced and yielded very quickly to the same treatment. The at first greatly tumefied joint had now become much reduced, except around the lower region, where the swelling remained very hot and quite hard. The limb could not at this time carry much weight. The wound healed completely, leaving but a trifling scar. After considerable bathing for several days a blister was applied over both sides of the joint. This seemed to afford considerable relief, as the animal could now commence to use its leg more, and at this date, February 4, 1902, after a second application of a counter-irritant, appears to be making a good recovery.

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

TYPHOID FEVER IN A HORSE.[1]

BY L. U. SHIPLEY, D.V.S.,
SHELDON, IOWA.

THE subject of this report was a bay gelding, six years old' weighing about 1100 pounds, that was bought by a dealer and put on feed to condition him for the market. About a week or ten days later our attention was called to the case. The groom stated that he did not eat well. After a casual examination we concluded that it was a case of indigestion, and treated him accordingly. However, his condition did not improve. By this time he had begun to show emaciation, eating sparingly of hay and grain at times, and at other times refusing grain entirely and drinking but little water. He was observed to yawn or gape and to grind the teeth and assume a position when standing similar to that of a horse about to urinate, seemingly desiring to tense the abdominal muscles. He had a tucked-up appearance of the flanks, and was also restless when lying down. The feces were of natural color but soft, and resembled in consistency those of a cow. Loud borborygmi were constantly present. The temperature ranged about 103° F., the pulse about 72, but otherwise normal in character; respiration was normal; the visible mucous membrane presented some small petechial spots. Pressure over the abdominal region seemed to cause no perceptible pain. The hair was sleek and glossy throughout the course of the disease. The case remained about the same except for a progressive emaciation, presenting the foregoing symptoms, with more or less intensity, for some eight weeks, when the symptoms became more alarming, and he died the following night.

The next forenoon we made a post-mortem examination and found considerable wine-colored fluid in the abdominal cavity. The peritoneum presented a thickened, softened condition, showing peritonitis to have been the immediate cause of death. Upon removing the small intestines we found the mucous layer much tumefied, as though having been affected by a catarrhal inflammation for some time. Peyer's and other lymph glands presented different stages of ulceration, with one or more distinct perforations. These ulcers were distributed throughout the length of the small intestines, and varied in size from that of the end of a lead-pencil to one inch in diameter, many of them presenting a yellowish-brown scab or slough not yet thrown off. All other digestive organs were normal in appearance.

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After having searched all the veterinary text-books at our command we sought some information upon this interesting case from works upon human pathology, and in their treatises on typhoid fever we found the following summary: "An endemic, infectious fever, associated with constant lesions of the lymph follicles of the intestines; first, hyperplasia, followed by ulceration of the solitary Peyer's and other lymph glands, due to the bacillus of Eberth."

The symptoms of the foregoing case—first, the continual presence of fever; second, the peculiar looseness of the bowels; third, the ulceration, perforation, and consequent peritonitis—are all characteristics of typhoid fever in man; consequently, the application of the title of this report. That the lesions were due to the bacillus of Eberth, as in man, we have no proof, having made no bacteriological search.

DISCUSSION.

Dr. Repp said that inasmuch as eminent investigators are unanimous in the opinion that typhoid fever as we know it in the human being does not occur in the domestic animals, he could not adopt the opinion of the author of this report that this was a case of typhoid fever.

PARTURITION CASES.[1]

By WILLIAM DRINKWATER, V.S.,
MONTICELLO, IOWA.

FROM an experience of nearly twenty years as a veterinarian in dairy districts, the writer would give some of his ideas with regard to parturition cases which test the ingenuity of practitioners of veterinary surgery.

The writer would advise the keeping of the instruments and appliances used in these cases in a convenient place, and when one of these urgent calls is to be attended to no time will be lost looking for the outfit. The instruments preferred are a repeller, or crotch; two hooks six inches long, one sharp and the other blunt pointed, each one with the eye for the rope made large enough to place a loop of rope through, thus avoiding the necessity of putting one cord in and pulling it through; two curved embryotomy knives, to cut by pulling toward the operator; a saw to sever leg bones when they cannot be turned without risk of lacerating the uterus; two small ropes, each six feet long, sash cord preferred; an injection pump; a bottle of creolin, and a large piece of tar soap. The writer has, for cases where it is difficult to keep the patient in a standing position or where the animal is lying down and needs to be raised, a set of pulleys, which consists of one double pulley, to attach to a pole or beam overhead in the stable, and two single pulleys; also forty feet of rope, one-half inch in diameter, rigged by passing twice through the double pulley and once to each single pulley, which is attached to loops of rope passed inside of each thigh of the mare or cow. The last, and a very important part, is a pair of waterproof overalls, a pair of rubber overshoes, and an old coat with the sleeves cut off at the shoulders, with an elastic cord run around the armholes to draw them in, so as to protect the clothing of the operator.

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We are called in only after the owner or someone else has failed to relieve the distressed animal, and we must be prepared for hard work. It is usually well to dress for the operation first of all, as when one gets started he may find what appears to be simple very difficult before he is done with it. First, lather the hands and arms well with the tar soap, and wash out the vagina and as much of the uterus and fœtus as possible with a creolin douche by aid of the injection pump, and examine carefully all around the fœtus and walls of the uterus for any lacerations which may have been made by someone who has failed to relieve the dystocia. If a rupture or large laceration is found, inform the owner at once and advise him that further work is useless, as it is a rare case that survives such lesions; but if he insists that you remove the fœtus this may be done, but no hope of the recovery of the mother should be given.

What the difficulty with the fœtus may be is for the operator to determine. He must use his best judgment in rectifying the position. He should be deliberate and careful in his action, avoiding too great haste. He should make every move count, and use great care not to bruise, lacerate, or rupture any of the parts of the mother. When ready to extract, the cords may be applied to the legs and considerable force used. If the fœtus is dead the hooks may be inserted where the firmest holds are found. When the fœtus has been dead for a considerable time it is generally bloated and too large for extraction; then the hooked knife may be passed up under each of the presenting legs, the skin ripped toward the operator, the hand pushed up under the skin, separating it from the muscles, the rope attached, and the limb pulled off the body. Sometimes the abdomen may be ripped open and the intestines removed, to reduce the size of the fœtus. If the reduction is made and most of the skin is left it may be pulled into the vagina and ropes or hooks attached to the skin or solid parts, and the bystanders may be given something to do. When removal is accomplished, a pail of warm, soft water, with creolin enough added to make it quite white, should be at hand, and the uterus flooded. If the patient does not expel it in a few minutes the hose can be taken off the injection pump, one end placed in the uterus, and the other end dropped on the stable floor or gutter, and the fluid thus siphoned out. This may be repeated. If the placenta has not loosened enough to be removed you may direct the owner to inform you if it is not expelled by the next day, and you can return and remove and wash out the uterus again. Last of all, to smear the vagina and sore parts with pure creolin.

The writer would not attempt to describe all the malpresentations and deformities that are met with in veterinary obstetrics, and does not assume that he is an expert in parturition cases, but gives some of his ideas of the managing of these cases, and hopes to bring up some points for discussion which may be of benefit to the members of this Association.

DISCUSSION.

Dr. Heck said that the removal of a putrid fœtus is a very difficult operation. He questioned if the undertaking would not be facilitated by injecting into the fœtus a quantity of a strong disinfecting and deodorizing substance, as, for instance, formaldehyde or carbolic acid. He said that the injection of a carbolic acid solution into the uterus of a sow containing putrid fœtuses will overcome the bad odor and render the fœtuses much easier of removal.

Dr. B. H. Miller and Dr. Scott thought that creolin was not to be recommended for use as a uterine douche, as it is apt to bring on straining.

Dr. Lyford recommends the use of some bland oil, as linseed oil or cottonseed oil, in large quantities, to be pumped into the uterus and vagina in cases where the fœtus is dry and hard to extract. One to three gallons may be needed. In one case he used ten gallons. Raw eggs in large quantities make a good lubricant, and may be used if available and expense does not forbid.

Dr. Scott uses lard in large quantities as a lubricant.

RABIES.[1]

By D. E. Baughman, M.D.C.,
FORT DODGE, IOWA.

At the earnest request of the President and Secretary I have endeavored to prepare a paper on "Rabies"—a disease that has interested me the past season, and I hope I will be successful in interesting the other members of the Association.

There has, perhaps, never been a time when it was more important than at the present for the veterinary profession to have a clear appreciation of the subject of rabies in animals and man. There was a time in the period of the profession's existence when there was excuse for differences of opinion in regard to this disease. It was a time when we depended solely upon clinical observation of accidental cases, and when the conclusions were founded upon imperfect evidence; but that time is past. To-day we have a science resting upon an experimental basis. Facts and conclusions have been established just as rigorously and as solidly as in other departments of medical science.

As members of a learned profession it is our duty to know what has been accomplished by scientific investigators of rabies, and particularly is this duty incumbent upon those who attempt to teach other members of the profession or the laity as to the facts in the case. We have reached a point where the intelligence and scientific knowledge of the veterinary profession are liable to be unjustly questioned because of a few mistakes of misguided individuals who persist in reiterating beliefs which were never held by a majority of the profession and were discarded and disproved years ago. It appears to the writer simply astounding that there are educated men, much less physicians and veterinarians, who will still doubt the contagiousness of this disease, which was known and described in ancient times, and which for a century has been the subject of experimental investigation by very able men who have occupied their minds with pathological questions. Nevertheless, it is a fact that the sanitarian of to-day who tries to control rabies meets the same kind of argument which was used to embarrass his profession centuries ago. These arguments are most industriously circulated by the so-called humane societies, which oppose all conclusions based upon experiments with animals, and which imagine that they are doing a great work for dogs and cats by casting discredit upon science, even though by so doing they perpetuate this terrible disease, of which dogs and cats are the principal victims.

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Aristotle described rabies 400 years B.C., and indicated its transmissibility in these terms: "Dogs suffer from hydrophobia, which provokes in them a state of madness. All animals bitten by dogs affected become rabid in the end." From that time to the present we have clear accounts of the disease existing through every age and provoking horror and fear in many centuries. It was always said to be caused by the bite of an animal, which animal was generally alleged to be rabid. It was almost universally described as fatal in man and animal.

Aristotle admitted that the disease was fatal to dogs and every other creature which they bite except man. This early mistake in regard to the immunity of man has been handed across the centuries, and is still repeated on every hand by those who oppose measures for the prevention of the disease. It may be freely admitted, therefore, that there have probably been many at all ages who have doubted the existence of the disease, both in mankind and in animal; that numerous articles and books have been written to prove that the disease called rabies is not contagious, and that the supposed rabies of man is lyssophobia, a nervous affection brought on by fear and excitement.

The medical profession as a whole, however, has always recognized the existence of such a disease as rabies in man, and the veterinary profession has from its foundation recognized its existence and the contagiousness of the disease. Its schools from the earliest to the latest have constantly taught this doctrine, and the present text-books are all unanimous on the subject.

The doubts raised from time to time concerning rabies and its characteristics have been met by scientific experiments.

Zinka, in 1804, announced that he had inoculated a dog, a rabbit, and a cock with saliva from a rabid dog, taking the saliva with a brush from the animal soon after its death and spreading it over superficial wounds of the inoculated animals. The dog was inoculated on the anterior limb, and showed prodromic symptoms on the eighth day and was rabid on the ninth day. The rabbit was rabid on the fourteenth day and the cock on the eleventh day. This experiment, early in the eighteenth century, proved that the disease of the dog called rabies was communicable by inoculation to the dog, the rabbit, and the fowl. It proved it to be a specific disease and that the virus existed in the saliva.

Reifershield, in 1813, records an experiment in which several dogs were inoculated, part with fluid and part with dried saliva from a rabid dog. These became affected with rabies after eight to ten days.

Bendt, in 1822, inoculated four wethers with saliva from the mouth of an ox which had died of rabies. All of these sheep contracted the disease, the period of inoculation being from twenty-two to thirty-one days.

In Hertwig's experiments he produced rabies by inoculation in 37 per cent. of cases. Renault produced it in 67 per cent.

Haubner gives an average of 40 per cent. of cases in rabies which were contracted through bites. Bollinger states that in man infection occurs in from 8 to 47 per cent. of bites. Pasteur says the proportion varies from 16 to 80 per cent. When cauterization is not performed it reaches 83 per cent. Bouley found that 90 per cent. suffered after bites on the face; 63 per cent. after bites on the hands; 24 per cent. after bites on the arms; 77 per cent. after bites on the legs, and 63 per cent. after bites on the body. The susceptibility of sheep is known to be the slightest, as the teeth of the biting animal are likely to be cleaned on the wool. Much, however, depends upon the stage of the disease and the abundance and virulence of the virus in the saliva as well as upon the susceptibility of the subject. Some animals are insusceptible, either naturally or by reason of their having been previously subjected to the action of the virus; yet under a full, virulent dose nearly all succumb. The theory that rabies kills more animals in summer than in winter has been weakened by statistics. Burrell has shown, according to the record of cases of rabies in his infirmary from 1859 to 1872, that they were not more frequent in summer than in winter. Three hundred and fourteen cases of rabies of the dog observed at the Alfort School during the years from 1887 to 1890 are divided as follows: January, February, and March, 130 cases; April, May, and June, 60 cases; July, August, and September, 50 cases; October, November, and December, 47 cases. Bouley records a greater number of cases in December, January, and February than in any other three months of the year. The real explanation of the greater prevalence in the spring and summer is found in the fact that bitches rut in the spring, and a number of the candidates for their favors bite each other fatally. This is aggravated by the fact that the generative instincts are stimulated in the early stages of rabies. This further explains the predominance of rabies in males. The irritable rabid dog antagonizes his male competitors and respects the female object of their common desire. There is, of course, only one cause of the disease, namely, inoculation from an animal suffering from the disease, although excitement will hasten the eruption in the inoculated animal.

It may be assumed that the virulent principle which causes the disease is an organic germ; but so far all attempts to isolate and cultivate it in pure culture have resulted in failure, and the microbe cannot yet be certainly identified.

Rabies agrees with all other germ diseases in that it develops only after inoculation, in that one attack usually fortifies the system against a second, and that in Australia, Tasmania, New Zealand, St. Helena, South Africa, and West Africa, from which mad dogs are excluded, it has never appeared, while in Buenos Ayres, Hong Kong, and Malta, where they have been allowed freedom it has become prevalent. What has never occurred in the past never need be looked for in the future. Cases in which infection is denied because the dog was shut up will be explained by a more thorough investigation. Rabid dogs will leap high fences to reach supposed enemies, and rabid rats and other vermin enter through small holes.

Rabies, like most microbic diseases, is at first confined to the region of the bite, and the tissues there are alone affected. When fully developed the infection is resident in the blood and all vascular tissues, yet the usual source of infection is through the bronchial mucus and the saliva, both of which are especially virulent and are naturally implanted by the teeth. This virulence is not confined to carnivora, but has been experimentally demonstrated in omnivora and herbivora. Various cases of infection from man to man are on record. Drying of saliva or blood, apart from heat or putrefaction, does not destroy its virulence. The knives fouled on rabid animals have been used for successful inoculation months and years later. Among other methods of infection besides the bite may be named the licking of sores by a dog in the early stages of rabies and the occupation of kennels or stalls that have previously harbored rabid animals. Rabies has been known to attack a second pack of hounds after the first pack had been killed out because of the disease. In one case a man was infected by using his teeth to untie a knot in a rope that had been used to tie a mad dog. Infection in man has been caused by a bite from a dog that had been previously fighting a rabid dog, and, again, from the scratch of a cat that had been licking its claws. In some cases of incipient rabies in dogs the saliva has been virulent before any outward symptoms were shown. Hence, all dogs, however sound in appearance, should be objects of suspicion in an infected district.

The anatomical alterations found in autopsies upon rabid animals are neither constant nor specific. Rabies is especially characterized by the absence of important organic lesions. There are emaciation; mucus about the eyes, nostrils, and prepuce; staring coat; venous congestion; the tongue has a dirty brown fur. In the dog foreign bodies, such as straw, hair, pieces of wood and clothing may be found in the mouth and pharynx; the stomach is congested and contracted, and contains little or no food, but a mixture of foreign bodies and indigestible substances which are highly characteristic of the disease. Wortley Axe in a total of 200 autopsies has found in 180 cases, or 90 per cent., absence of food and the presence of indigestible foreign bodies in the stomach. For him this latter fact is the most important from a diagnostic stand-point. Post-mortem diagnosis can be established with certainty only by inoculation; but when at the autopsy of a dog which manifested aggressive tendencies during the last period of life, or which had bitten animals or people, we recognize the ordinary symptoms of rabies, especially the presence of foreign bodies in the stomach, we must, without hesitation, affirm the case to be rabies, and proceed accordingly.

Babes describes changes in the nerve cells, with cloudiness of the protoplasm. These have been especially noticed in connection with the motor centres in the medulla oblongata, but also in the gray matter of the cerebrum. The nerve trunks, too, may be the seat of congestion and the fibres undergo a granular degeneration.

The lesions to be especially relied on in the dog are the congestion of the fauces and throat; the congested, infiltrated, or ulcerated state of the stomach; the absence of food; the presence of foreign bodies; some congestion of the small intestines; empty or nearly empty bladder; mucus or mucopurulent secretion oozing from various openings; congestion of superficial veins; congestion of the brain and the meninges. These, with the history of the cases, are usually sufficient to identify the disease. It should be added, however, that in the paralytic or lethargic form in the dog there may be an entire absence of foreign bodies in the stomach.

Of the 17 cases in the dog that I have met with in my practice in the past year most of them were of the paralytic form; 7 out of the 17 cases have been of the furious form; 10 of the animals were either known to have been bitten or had been exposed to rabid dogs. The remainder were not exposed to the disease, to the knowledge of the owners; yet it is possible that they were, not having been confined and having had access to the street at will. The period of incubation varies greatly. In inoculation with potent virus or street virus upon the brain it is six days. In other parts of the body it varies from 16 to 240 days, with an average of 25 days.

Rabies appears under two clinical forms, which are designated by the expression of furious rabies and mute rabies. Formerly these two forms were considered two distinct diseases, but this view was abandoned long ago.

According to Pasteur, furious rabies occurs when the brain is invaded by the rabid virus, and mute when it reaches the spinal cord first. His claim is that we may produce the former experimentally by directly depositing the virus on the surface of the brain, the latter by injecting it into subcutaneous connective tissue. I rather doubt the correctness of this assertion, as I am inclined to think that only a very small percentage of dogs are bitten on the face compared to the number bitten on other parts of the body. While in man the percentage of bites on the face is very small, the majority of cases of rabies in man are of the furious form. By depositing the virus directly on the brain it produces a disease within a very short period of incubation, which possibly accounts for the activity of the symptoms excited by this form of inoculation.

The prevention of rabies can be accomplished in cities and towns only by passing ordinances and compelling owners to muzzle their dogs when the outbreak occurs in a community. The animal should wear an efficient muzzle, as rabies is propagated in nature only by biting. Such a regulation, if strictly enforced, would stop the transmission of the disease and soon lead to its disappearance.

As the disease is just as prevalent in winter as in summer, the dogs should be muzzled the year round until the disease has made its entire disappearance. However, this is at once opposed by a class of citizens who hold it to be cruel and unnecessary.

Some muzzles are unquestionably cruel, but a properly made muzzle is not cruel, nor does it greatly inconvenience the dog after he has become accustomed to it. A certain kind of muzzle should be prescribed by the authorities. It should be one which covers the mouth with a wire cage, so as to prevent biting, but which does not interfere with the movements of the mouth and the ingestion of liquids. There are many who claim that dogs do not wear the muzzle at home, and that when they develop rabies and escape it is always when they are not muzzled. Admitting this argument to be true, nevertheless it is a fact that, if all dogs were required to be muzzled when in public, the appearance of a dog without a muzzle would at once attract attention, leading persons to avoid it and causing its early seizure by the authorities. Children might be taught to fear unmuzzled dogs and to keep at a distance. The results which have been attained by muzzles justify the enforcement of a muzzling ordinance whenever there is an outbreak. In Berlin, where a rigorous muzzle law was enforced, the disease was entirely eradicated; also in Great Britain the muzzle has been adopted with great success.

The treatment of the bite should receive the first attention. If possible, the wound should be cauterized by the actual cautery; if not, chloride of zinc, bichloride of mercury, caustic potash, silver nitrate, or sulphate of copper or iron should be used. Care should be taken to apply it thoroughly to all recesses of the wound. If mineral acids or other liquid caustics are employed they may be delivered into the minute recesses through a pipette or a plug of cotton wound around a stick or with a syringe. A delay of several hours or days is no warrant for omitting cauterization, for in man it has always a good moral effect in preventing hydrophobia, and it is also possible that the poison may remain for some time in the region of the sore.

Senn's advice is to excise the adjacent tissue. This may be followed, but not to the exclusion of a thorough disinfection.

When a person has been bitten by a dog with symptoms of rabies the dog should not be killed, but should be chained in a place where it will have no chance to do harm to anyone. There it should be kept until the disease has had a chance to thoroughly develop. If it dies from rabies, and the bite has not had the necessary treatment, the bitten person should at once take the now famous Pasteur cure. The Pasteur Institute at Chicago has been established eleven years, in which time 1262 patients have been treated. Of these only seven have died, making a death-rate of less than ½ of 1 per cent. As a remedial agent for the bitten the Pasteur treatment is unquestionably effective, as is shown by the great percentage of cures.

DISCUSSION.

Dr. Lyford related a case of rabies in a horse. The horse was bitten on the nose by a dog, and, later on, on the hind limb while being driven through the street by its owner. The offending dog was killed. On the twentieth day the horse was reported by the owner to be acting strangely. Dr. Lyford visited him, and found him acting violently and showing a great tendency to bite everyone except his owner, who could handle him without difficulty. A diagnosis of rabies was made and the owner instructed to tie him with a chain. The next day the horse was much worse, and the tendency to bite was much more developed. The stall bore marks of the animal's teeth, and his mouth was injured and bleeding. A broom was held out to the horse, and he grasped it in his teeth and shook it as a dog would shake a rat, then lay down and rolled up on his back, still holding the broom firmly in his jaws. The horse was killed and the head sent to the University of Minnesota. Three rabbits were inoculated subdurally, and in due course of time developed rabies.

Dr. Repp described the microscopical changes detailed by Van Gehuchten and Nelis in Europe, and later by Ravenel and McCarthy in this country.

Dr. Brimhall reported a case in his experience in which it was proven by successive rabbit inoculations that the milk of a cow suffering from rabies was virulent and capable of producing rabies.

A TRIP TO SOUTH AFRICA.

By J. Massie, Veterinary Major,
ROYAL CANADIAN FIELD ARTILLERY, KINGSTON, CANADA.

In January, 1900, a brigade division of artillery, consisting of "C," "D," and "E" batteries, Royal Canadian Field Artillery, six breech-loading twelve pounders each, under command of Col. Drury, proceeded to South Africa on active service.

I had the honor of accompanying this part of my regiment in my capacity as veterinary officer.

We proceeded to Halifax by rail, and leaving that port on board S. S. Laurentian January 21st, we arrived at Cape Town, South Africa, February 18th, being twenty-eight days en route.

It must be considered that in leaving our country in mid-winter for a sea voyage of some six thousand miles, and crossing the equator with a shipload of horses in the hold and on mid-decks, and men in every quarter of the ship, that the constitutional strain on men and horses was most severe.

To make matters worse, or as bad as possible, before embarking the horses they were exposed to a very heavy, cold rain. In fact, many of the animals had already taken cold during transit by train, the weather during the previous few days being extremely cold.

There was no help for it, the animals had to be put on board cold and wet, and were put in temporary stalls constructed of posts and scantling, and fitted with slings.

For three days after leaving Halifax we experienced heavy weather, and nearly every horse on board developed lung trouble in some form.

To say that the duties of a veterinary officer and his staff for twenty-eight days and nights under the circumstances were trying in the extreme would be putting it very mildly indeed.

We lost twenty-six animals during the trip, nearly all from pneumonia.

On arriving at Cape Town we disembarked our horses in a rather weakened condition; many had to be helped down the gangways, but I was thankful to get them ashore once more, as I was sure they would only need a few weeks' rest and care with good feeding to get them all right again.

Such was not our good fortune, however, as we were scarcely two weeks in camp at Green Point (just outside the town) when we were ordered up country with all speed by train from Cape Town, we knew not where.

After travelling nearly two days and a night, we were detrained at a place called Victoria, and on the following day formed part of a column with mounted infantry marching through what is known as the Karoo desert, five hundred miles, where not a blade of grass was to be seen, nothing but a small shrub growing from six to eight inches high, resembling Scotch heather, on which sheep and goats can live, but which our horses would not touch, and where water was scarce and of poor quality. Many of our horses died from exhaustion on this march, which was the hardest I experienced in the campaign. Forage was scarce, and consisted for a time of three or four quarts daily of wheat and five pounds of wheat chaff per horse. Supply transport wagons, drawn by mules and oxen, carried food and other necessaries; but these supplies were not always replenished when needed, as in a hostile country transport was not safe, and was always slow and difficult.

As a general thing we were issued ten pounds of oats and fourteen pounds of pressed hay per horse per diem, eight pounds of corn (called mealies) for the mules; trek oxen, fifteen pounds of hay and allowed what they could get when safe to graze.

In parts of the Orange River Colony, late Orange Free State and Transvaal, good grazing was found, and in my opinion are among the best stock-raising countries in the world. Animals need very little care, and can feed on the veldt grass all the year round. I have seen as good fat cattle in Africa as any Canadian farmer could wish for.

The diseases most commonly met with in horses are sand colic; the animals being always hungry will keep nibbling at any green root or grass or other plant they can get, eating sand in their grazing, large quantities entering the stomach and bowels.

In autopsies that I have made I have found the lining membrane fairly rubbed off in parts, and the organs generally much inflamed. Ticks also infest horses as sheep are in this country. Sore eyes, glanders, mange, and what is known as *horse sickness.* This disease is not well understood, nor is its cause known.

The disease usually makes its appearance in the latter part of the summer and autumn, and disappears with the first frosts. There are two forms of the disease, one chiefly affects the lungs and in which there is no external swellings. In the other form, known as *dilkop,* swellings occur about the throat, head, and neck. In both forms the mortality is great, especially when epidemic.

Premonitory symptoms are not well marked, especially in hard-worked and poorly-fed animals. Dulness is perhaps noticeable, the animal may not refuse his food, and temperature remains almost or quite normal. He suddenly begins to blow and have difficulty of breathing, a hollow cough, and discharge from the nostrils of a white, frothy character, sometimes tinged with blood. This frothy substance is very abundant, and falls to the ground like soapsuds The animal becomes unable to move, and stands with the forelegs stretched out and head low. Death usually occurs in from one to three hours. Horses which have recovered from an attack of the disease are said to be *salted,* and are considered immune, and will sell for much more than animals not known to be salted. But cases are known where animals have taken the disease a second time and died.

Pleuropneumonia contagiosa (called lung sick) is often found in cattle; also rinderpest, which carried off thousands of animals in Cape Colony a few years ago.

Horses from many different parts of the world were brought into South Africa for military and transport service, and in such enormous numbers as to greatly enhance their prices in the home markets, but I cannot dwell on the respective merits or demerits of the different classes, as I am afraid my article is already too long to be interesting.

No doubt the question of horse-breeding will receive the attention it deserves in South Africa, and the many valuable mares which have found their way into the country from England, Australia, India, New Zealand, the United States of America, and Canada will in time be the progenitors of as fine a type of horse as any country can produce.

The native stock is largely in-bred with Arab blood, and are remarkably good saddle and light harness animals, averaging from fourteen to fifteen hands, and possessing wonderful endurance and remarkable soundness.

I had the honor of being chief veterinary officer on three different columns, having, including trek mules and oxen, from three to five thousand animals. I was furnished with ample supplies of medicines for the outfit; also a cart, mules, and two Kaffir drivers, besides my orderly.

PRESIDENT'S ADDRESS.[1]

By S. J. J. Harger, V.M.D.,
PHILADELPHIA, PA.

My most pleasant duty at this moment, as your presiding officer, is to welcome you, gentlemen, to the twenty-first annual meeting of this organization. For a number of years we have met at the Veterinary Department of the University of Pennsylvania; but, on account of the lack of necessary facilities, another meeting-place has been chosen. This circumstance is expected to be only temporary, and as in the past, so in the future, that institution will entertain the most friendly hospitality toward our organization.

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[1] Presented at the annual meeting of the Pennsylvania State Veterinary Medical Association, March 4 and 5, 1902.

Our last semi-annual meeting, as you are aware, was held in Pittsburg. Considering the attendance, the meeting may be called successful. However, I cannot disguise my thought, and I think myself justified in saying that "absence" rather than "presence" was personified, and I much regretted not to see many more familiar faces. The reason for this may be difficult to surmise. There was ample food for body and mind, and much more could have been called forth by a larger attendance. We are conscious of the benefits derived from organizations without repeating them here. We are acquainted with the advantages, not only educational but also moral and political, which this organization gives to the veterinarian of the State. I therefore hope that everyone will take an active interest in our semi-annual meetings. The veterinarian who claims that he is too busy to attend is the very one who is best able to come to these meetings. He can afford it financially, and is sufficiently strong in his community to survive the objections of his clients in leaving his practice.

During the past year veterinary science has continued its progressive tendency, the different aspects of which will be discussed to-day by the reports of the several committees. The profound sensation created by Dr. Koch on the subject of tuberculosis, and familiar to all, has died a natural death; the negative evidence was so abundant that scarcely a former shadow of itself is left. Theories come and go with such rapidity that they can be accepted only after the most careful weighing of the facts. The more sensational they are the more thought for their consideration before they should be accepted.

The bacteriologist, biologist, and microscopist still occupy the foreground; in fact, medicine might be called "microörganology." Most advances have been made in this direction, and the end is not yet in sight. We have only learned enough to know how little we know, and, on the other hand, how careful we must be before accepting conclusions. Further investigations will clear up what are now obscure points. Veterinary education is more and more shaped to answer this requirement, and with the same purpose the veterinarian should keep himself informed upon this subject. I do not mean to say that every practitioner can be an expert bacteriologist and microscopist, or that he must have a bacteriological laboratory, but that he possess sufficient knowledge to make certain practical uses to which such work can be applied.

Much can be done with the microscope, which everyone should possess, but not always does. The technique for applying it for ordinary purposes can be learned without much trouble in such cases as anæmia, leucæmia, leucocythæmia, blood parasites, anthrax, nephritis, etc., and a diagnosis is possible only with such a procedure.

The same interest is still maintained in sanitary science—meat- and milk-inspection and preventive medicine. A great deal of work has been done in this direction, and the character of this kind of work is not new to the veterinarian. The Federal Government has extended its work and increased its number of inspectors. A few individual States have done work in this direction. I believe that the veterinarians have worked and should work toward this end. They should bring the importance of this work, accompanied by facts intelligently demonstrated, to the attention of medical men and other influential persons of their community; their newspapers should be interested. This should not be done with the blare of a trumpet or by boastful audacity. These will create a reaction and excite antagonism. It requires tact, facts, and persistence.

In my previous address I spoke of the veterinarian's necessity to study the more industrial aspect of the domestic animals, judging their points for a particular utility, the special aptitude, their breeding, rearing, and feeding, and to advise those in his community who look up to him as their superior. The times have not changed.

I know that every veterinarian in the State is interested in the Veterinary Department of the University of Pennsylvania. This school was moved last fall from its old quarters to a new location. This may have given rise to the misapprehension that the school would be closed or relegated to a position secondary to that which it formerly occupied. This is not the case, and hence my remarks. It is proposed to erect on the site on which are situated at present the temporary buildings a large building that will in architecture conform with the other buildings recently erected by the University. The new school will be more conveniently located for its patrons, and its equipments will be better than those of the old one. It will combine the most approved facilities of the several schools of Europe.

I need not eulogize upon the progress of veterinary medicine. Its course is still on the ascent, and I dare say few practitioners can complain of their lot during the past year. Everyone appears to have enjoyed a reasonable degree of prosperity. That this was not local, but extended over the entire country, was exemplified by the national meeting at Atlantic City, which by old members was said to have been the most successful in the history of that Association from every point of vantage—numerically, professionally, and socially. The numerous excellent papers indicate that the veterinarian is occupying himself with scientific work; that important results are accomplished for the good of the individual and the State, and that evidently the veterinarian must receive a reasonable remuneration. The meeting was to us a striking example of encouragement.

One of the essential conditions that has always promoted the success of this Association is the harmony which has always existed among the veterinarians of Pennsylvania. This is a necessity toward success. As soon as internal strife develops in any organization its downfall can safely be predicted. Pennsylvania veterinarians have always looked at public questions in their broadest sense. They strove as one man, concentrated their energies in the same direction, and even sacrificed themselves to attain results that redound for the public good. We may need new legislation, old laws may require to be amended, appropriations for State work are needed, the influence of the veterinarian in sanitary and live-stock problems must be pushed, and our aim can only be accomplished by standing together and working as one man. The work which has been accomplished by our progeny, the State Live-stock Sanitary Board and the State Board of Veterinary Medical Examiners can be best appreciated by comparing their work with that accomplished in other States. We should be willing, without any hesitation, to give them any moral as well as financial support which they may require.

It is with extreme sorrow that I speak of the death of one of our honorary members, Rush S. Huidekoper. We all knew him, and I need not eulogize. He was perhaps the best-known veterinarian in this country. He was a man of rare ability and intellect and devoted to his profession. His energies were ceaseless in raising our profession from its dormant state, and his work will be most appreciated when he is no more. Kind of heart, he did not hesitate to do anyone a favor when it was in his power. I have been under personal obligations to him during our acquaintance, and always found in him a good friend. His decease was a great loss to veterinary science.

Finally, when I am about to leave this office, which has been intrusted to me during the past two years, let me extend my sincere thanks to this Association. I have had my shortcomings in the administration of its affairs which cannot now be remedied. I claim no credit for what has been accomplished, and perhaps much was left undone which should have been done. Every member has contributed his share of success. I wish to thank especially my co-officers for the energetic and reliable manner in which they have conducted their work, for which they deserve the highest credit. I know that my successor will meet with the same indulgence at your hands.

PRACTICAL HINTS IN PATHOLOGY.[1]

By D. King Smith, M.D.,
PATHOLOGIST, ONTARIO VETERINARY COLLEGE.

Probably the greatest difficulty one has in appearing before you is to find a suitable theme or subject that might prove both interesting and instructive. In reviewing the number of subjects that have been presented to you in past years, either before this meeting or appearing in veterinary periodicals, I was at a loss to know what to say a few words about.

Finally, I decided to wander from the usual method of writing an essay and give to you some "Practical Hints in Pathology." Before doing so I must ask the kind indulgence of those gentlemen who are acquainted with the work for taking up their valuable time.

Why this subject suggested itself to me is due to the fact that many veterinarians have not the time at their disposal to give much consideration to practical pathology, and simply by reading the description of the changes which take place during disease in various organs it is most natural for many "not to ask themselves," How is it that these changes have been studied and demonstrated?

To many, no doubt, the process has always seemed most difficult, and in my next few words I will try to show that the subject is *not* so obscure and deep, but at the present day is rather simple, due to the improvements in microscopes and other instruments.

An absolute diagnosis is often impossible to the pathologist unless he has possession of certain facts regarding the source of the specimen, its exact location, manner of growth, etc.; therefore the surgeon or practitioner should keep accurate notes regarding every specimen that he removes and examines. This, unfortunately, is often neglected, and specimens are forwarded for microscopical examination without any history at all, and on that account seldom is a satisfactory examination made.

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[1] Read at the meeting of the Ontario Veterinary Medical Association.

It is better to send more than one piece of a tissue, if possible, and some of the adjacent healthy tissue.

First, we will consider the preservation of gross specimens:

In the preparation and preservation of pathological specimens one must be guided entirely by the nature of the specimen as to the way in which it shall be prepared.

Soft specimens and organs are best preserved in fluids. Membranous parts are sometimes best inflated and dried, as dilated stomach, intestines, etc.; they should be varnished after drying.

Hollow organs like the heart may be filled with absolute alcohol or 6 per cent. formalin solution, under pressure, the openings tightly corked, and the organ immersed in a solution of the same.

After a time the heart walls become hard, and windows may be cut across, so as to expose the interior. The majority of specimens obtained will be suitable for preservation in fluids. Alcohol and formalin are the two solutions most frequently used.

Steps. (*a*) Wash the specimen in flowing water until the blood is removed; (*b*) put in 60 to 80 per cent. alcohol and change when the alcohol becomes cloudy.

The volume of alcohol should be much greater than that of the mass. Lately formalin in a 2 to 4 per cent. solution has come into wide use. It has the following advantages: (*a*) It is much cheaper; (*b*) preserves color—contrast is better; (*c*) does not require such frequent changes as alcohol.

The foregoing process you will find most useful in keeping any interesting specimens.

I must now say a few words as to preparing specimens for microscopical examination.

Before a specimen can be cut thin enough for examination under the microscope it must be hardened in order that the tissue be *not* injured during the process of cutting.

It is well to put the tissue into a hardening fluid as soon as possible after death. This can often be done by the person forwarding the specimen.

First, wash the organ, of which you are going to forward a piece, in flowing water until the blood is removed; then with a sharp knife cut small pieces of the organ—one-quarter to one-half inch, or thereabouts—and now place in 95 per cent. alcohol. Use alcohol in a large quantity compared to the mass. You should now seal the bottle and forward specimen.

The alcohol is changed daily for several days—five or six days—and then the specimen is ready for cutting.

Another method is to place small pieces—one-quarter by one-half inch—into a 4 per cent. formalin solution, and then in a day or so remove to 95 per cent. alcohol. By either of these methods the tissue is now ready to be cut. The cutting is done by means of instruments called microtomes, of which there are a great many varieties.

The cut sections are now kept in 95 per cent. alcohol, and may be kept indefinitely if care be used in changing the alcohol when it becomes cloudy.

If these cut sections are now examined under the microscope it would be very difficult or almost impossible to make out the structure; therefore it is necessary to resort to staining.

Certain tissues or parts of a tissue have a special affinity for staining fluids, and it is due to this fact that certain tissues stand out in relief one to the other.

The process of staining used most frequently for general work is termed "the double staining." In this method two stains are used, namely, hæmatoxylin and eosin. The steps are as follows:

1. Stain in hæmatoxylin for one and one-half to two minutes.
2. Wash in water until no more stain comes away.
3. Stain in eosin one and one-half to two minutes.
4. Wash in water until no more stain comes away.
5. Dehydration, by placing in alcohol.
6. Oil of cloves to clear specimen.
7. Mount in Canada balsam.

In this paper, gentlemen, I have not attempted to give in detail the process of staining, hardening, etc., but simply a general idea of this important branch of our work.

THE UNSOLVED PROBLEMS OF MILK FEVER.[1]

BY J. M. W. KITCHEN, M.D.

THERE are still some obstacles which stand in the way of the success of the up-to-date dairyman. It is determined that the high-power, special-purpose cow fed a narrowly balanced ration rich in protein is an essential to success in this day of keen competition and low prices for dairy products; but concomitant with the use of such a cow is the fact that the very best of them are very liable to be carried off by the disease which is popularly known as "milk fever," but which shall be designated more appropriately as parturient septicæmia.

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[1] Read at a meeting of the Veterinary Medical Association of New Jersey, held at Trenton, N. J., January 9, 1902.

As an introduction or text to the subject I will relate the history of the sickness of one of the best cows comprised in my Robinwood Farm herd of Jersey cattle, at Gilmanton, N. H.

Daisy of Gilmanton was a very healthy cow of about ten years of age, and weighing about 1000 pounds. The next prominent thing about her observed was that she was a big eater; her god was her belly. She was due to calve November 9th, and had been fed on a narrow feed well balanced with protein—as much in quantity as was necessary to keep her up to her flow. She was a 400-pound cow on ordinary good dairy feeding.

October 5, 1901. Her protein concentrates were stopped, and she was given a light feeding of poor English hay that was "broad" in its ratio of contained protein. She still picked up some pasturage. The idea was to dry her up for a few weeks before calving.

12*th*. She had given forty-seven and three-quarter pounds of milk during the past seven days, or nearly three and one-half quarts a day on an average.

13*th*. Took from her two and one-half quarts of milk—6 per cent. butter-fat; then the men apparently stopped milking her. I was absent from the farm at the time, else I do not think this cow would have died.

November 1*st*. Nine days before she was due to calve she began to make up her bag. It was larger than that of last year, 1900, but not any larger than in the years previous to 1900.

6*th*. Began to strip her, but got little milk.

9*th*. Due to calve, but no calf came to hand.

18*th*. Was apparently in good health; udder soft and pliable; got about two tablespoonfuls of milk from each teat; was a little constipated; gave her a little bran and a few doses consecutively of jalap powder. Her belly was very large, much more so than usual.

19*th*. Seemed ready to calve, but there were no labor pains. Began to give down milk; got three quarts at night. Calf was alive. Felt it move from outside.

20*th*. Seemed sick. No calf born. Gave her a large dose of salts at noon. Would not eat or drink. Seemed as if she had a bellyache, kicking at the belly. She dunged during the day.

Local veterinarian arrived at 10 P. M.; found the calf dead and os rigid, and concluded to leave the calf and see if the os would not relax. Found after-birth ripe. Said she was paralyzed with milk fever.

21*st.* Down flat on her belly, with her feet directly under her. Could not get her position changed. Did not dung during the past night. Slight labor pains, but not strong enough to expel the calf.

November 22, 1902. Mouth of the uterus much expanded. Took away the calf all right. The after-birth was expelled immediately afterward by the action of the uterus. No bad smell to it. Gave her a dose of salts, and injected in the uterus four quarts of carbolated water that had been boiled and cooled. Put her on the Schmidt treatment—*i. e.*, gave one injection of potassium iodide, three drachms, and water, one pint, boiled and cooled to 100° F. The injection was not repeated. Gave her another dose of salts. Had a rectal passage this night. Had no objectional vaginal discharge now or afterward.

23*d.* On her feet, and no signs of paralysis. Fed her on hay tea; would eat and drink a little, but acted as if her mouth was sore. Rectal discharges thin during the morning; got thicker and were scanty in the evening.

24*th.* Condition about the same. Little rectal discharge.

25*th.* Down flat. Seemed in great pain. Dosed her with hay tea and gave four ounces of whiskey every four hours. Began to have very offensive rectal discharges.

26*th.* Not so well, but still up. Seemed to be sinking away and losing strength. Would take no nourishment. Rectal discharges very offensive. Veterinarian diagnosticated inflammation of the bowels. Gave flaxseed tea.

27*th.* Down flat and would not get up. In great pain; seemed to have a convulsion.

28*th.* Seemed a little brighter. In the evening took a little water herself.

29*th.* About the same or a little better. Gave her a little oatmeal water.

30*th.* About the same. Would drink a little, but not eat. Continued to sink, and died at 1 A. M. in the night.

I will give you my interpretation of the case, and will ask your criticism and comment on the same.

The diagnosis, I think, should be that of a complication of delayed parturition, of a moderate attack of milk fever and congestion, and intestinal inflammation secondary to the absorption of ptomain poison.

The delay in calving, I think, was due to the fact that the cow was deprived of her accustomed protein nourishment, so that she did not have sufficient nerve force and uterine muscular strength to expel the calf. Possibly a gradual absorption of ptomains after the bag began to make up may have had some influence; possibly the fact of the cow having given milk so long had some influence.

The cow was not nourished actively enough during the attack. She should have had protein nourishment. The whiskey alone was adding a poison to a poison. The hay tea had no protein in it. The milk fever was due, I think, to the fact that the old milk was left in the udder from October 13th to November 6th, and became a breeding medium for bacteria. The watery elements were absorbed, but left a ferment there that could not be stripped out. Possibly the parenchyma of the udder became infiltrated with the germs, and when a new supply of blood was directed to the udder at the time when the placenta became ripe, and practically dissociated from the uterine walls, the ferment germs were nourished into proliferating activity, and the ptomain poison was absorbed into the system.

We infer that milk fever, so-called, is due to the action of a ptomain poison, because the symptoms are so like those in human patients. We believe that in most cases the route of infection is through the udder, because the trouble hardly ever occurs with the first calf and seldom with the second calf. It is only in mature large producers where there are large milk ducts that the disease is likely to occur. In such cows germs can quite readily find entrance through the large milk ducts of the teats.

We also think the udder is the route of infection because in most cases the Schmidt treatment of injecting and rubbing in the iodide of potassium solution, if thoroughly well done, saves the cow. It is, of course, a possible thing for the infection to be through the uterus; but this is probably rare, as the young animal would be as likely as the old to be thus infected. Furthermore, it seems to be warded off when a quick, full flow of blood to the udder is prevented in various ways, or at least is only slight in its effect.

I think it is about time that the world of science gave us definite information in regard to this problem of infection. Is it due to the old milk in the udder? Is it due to the slow accumulation of the new formation of albumins and fatty colostrum becoming a medium for the growth of ferment germs? Do the germs involve the parenchyma of the udder, and, if so, is it a fatal condition? We can imagine that if the germs gain access to the blood the result will be immediately fatal.

What we want is that the dairy bacteriologists should make laboratory examinations of cows that have the fever. We want the stations to experiment in washing out the udders of cows every week during the time between drying up and calving. Will not those here present use their influence to get such work done?

The defects in the treatment of this cow were in not giving her a reasonable amount of protein feed up to within ten days to a week before calving. When milk fever was reported her udder should have been immediately washed out with either salt solution or with a solution of sodium sulphite or other antiseptic. The Schmidt treatment should have immediately followed, and it should have been repeated every two hours while in danger, and she should have been actively supported with drenches of milk gruel.

COLD IN THE ETIOGENESIS OF PNEUMONIA. Bourgés, veterinarian in the French army, made observations in the winter of 1900–1901, during the Chinese expedition. The months of December, January, and February in Northern China are very cold, and it seldom snows or rains. The atmosphere is dry. The expedition carried 2850 horses and mules, unacclimated, and collected from Europe, Algeria, Australia, Corea, and China. Most of them were kept in poorly constructed stables, with a temperature of from 10° to 15° below zero; others were sheltered at a temperature of from 2° to 3° below zero; the ventilation was excessive. The mortality from intrathoracic diseases during these months was 7. These diseases were rare, because the horses were well nourished, moderately worked, and not exposed to the unhealthful influences of crowded stables and an impure atmosphere. On the other hand, during the months of November, March, and April, when the temperature was more moderate, the mortality was 10.

The conclusions were drawn: That intrathoracic diseases are no more frequent in winter than during other seasons; that a cold and dry atmosphere is not a causative factor in pneumonia; that these facts militate against the crowding of horses in poorly ventilated and unsanitary stables.—*Rec. de Méd. Vét.*

DEPARTMENT OF CANINE, FELINE, AND AVIAN MEDICINE AND SURGERY.

By Cecil French, D.V.S. (McGill and Munich),
WASHINGTON, D. C.

A NEW CANINE INSTRUMENT.

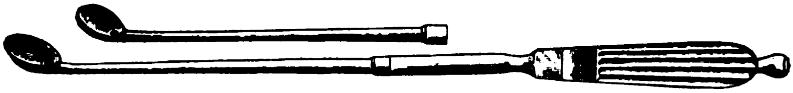
Rectal obstruction by fecal accumulation (coprostasis) is frequently removable only with considerable difficulty. Indeed, it is sometimes impossible to make the slightest impression on these hardened masses by the simple method of attacking them with instruments through the anal orifice, and it then becomes necessary to open the abdominal cavity, and either force the matter on by manipulation or deliver it by enterotomy.

Now, while the operation of cœliotomy on a healthy dog is ordinarily remarkably free from any ill-effect, it is a different matter when the animal is septicæmic. Rinne (*Ueber den Eiterungsprocess und seine Metastasen*, Berlin, 1889, p. 61), in a series of experiments on dogs, observed that injection of sterilized putrid fluids together with staphylococci into the peritoneal cavity was succeeded by suppuration of all open wounds, which otherwise healed kindly, thereby demonstrating that pyogenic cocci could be derived from the circulation. An animal which has suffered any length of time from fecal obstruction is in a condition of copræmia, or, in other words, its blood is charged with the products of intestinal putrefaction together with the micro-organisms causing the same. It is in a condition very similar to that produced artificially by Rinne; and it is small wonder that wounds, particularly of the peritoneal cavity, under these circumstances show a pronounced tendency to heal unkindly, and even terminate unfavorably. Hence, any measures involving interference with the integrity of that part of the organism should only be employed as a last expedient. Experience has taught me to persevere by simple means when attempting to relieve fecal impaction.

The instruments commonly employed in this condition are the rectal scoop or curette and the rectal forceps, supplemented by the rectal syringe.

As I have already intimated, one may sometimes work for hours with the instruments mentioned without making any pronounced headway, owing to the hardness of the concrement, its distance from the anal orifice, or the swollen state of the rectal mucosa; but if one alternately uses the scoop and directs a stream of water against the mass it may be more easily disintegrated and softened. This fact made it evident to me that an instrument was needed which would combine both features of scooping and irrigating capacity.

Accordingly, I had Haussmann & Dunn manufacture a scoop, the stem of which is hollowed to permit of a steady flow of water on the point of the mass being attacked. The extremity of the handle receives the rubber tubing of the syringe, and the water escapes at the base of the bowl. The stem is made in two sizes, either of which is screwed into the handle, as desired. The water should be injected by means of a bulb syringe, as a fountain syringe lacks the requisite force.



But there is another feature about this instrument that makes it doubly valuable. It has been a matter of observation that if a considerable volume of water can be conducted beyond the obstructing mass the bowel will often become sufficiently distended and stimulated to produce its evacuation without any further assistance. The instrument, being of good length, permits of its employment for this purpose.

THERAPEUTIC USE OF LECITHIN. Lecithin influences the general nutrition of the organism, and especially that of the nervous system. Lancereaux and Paulesco have employed the ovolecithin, 50 centigrammes daily, to counteract the progressive depression from pancreatic diabetes. The emaciation ceased, the weight increased, and the general state ameliorated. Analogous effects were seen in other diverse vices of nutrition.

Desgrez and Zaki administered to the guinea-pig and the dog lecithin prepared from hens' eggs. The former were divided into three lots and fed on bran-bread and cabbage. The first lot were "checks;" the second received hypodermically, every two days, 0.06 grain of lecithin; the third received the same dose by the mouth, in pill form. After forty-three days the increase in weight was 43 per cent. for the first, 60 per cent. for the second, and 75 per cent. for the third lot; urea and other nitrogenous excretions were increased. The results with the dogs were analogous.—*Ann. de Méd. Vét.*

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

IODINE IN THE LEUCOCYTES. Stassano and Bourcet demonstrated that normal blood contains iodine, and by chemical examination found that this metal was fixed in the white blood cells. —*Comp.-rend. Acad. des Sci., Paris.*

PYÆMIA IN THE FOAL. Sohnle, of the national stud of Wurtemberg, after some pathological and bacteriological studies, arranges the diverse manifestations of this affection under one morbid entity. According to him, the infection may take place *in utero* or through the umbilicus by an infected liver; an infected stallion may propagate the disease from mare to mare during coition. The disease has been seen in successive colts from the same mare. According to the records of the stud at Marbach, mares so infected will not become pregnant, abort, or the foal becomes affected a few days after birth, according to the virulence of the germ; the same is said of mares served by a contaminated stallion.

The disease may manifest itself from eight to twenty-four hours after birth. Isolation of the mare is not always a preventive, and Sohnle has found in the genital discharges and in the uterus the microbe which he considers as the specific cause. These are the reasons of infection *in utero.* Alterations of the umbilical cord may be wanting.

The specific microbe is claimed to be a diplococcus encapsulated and found in the tendinous and articular synovials, in the blood, and in the uterine discharges of infected mares. It takes the Gram and aniline stains, grows upon different media, liquefies gelatin in forty-eight hours, and forms colonies of a granular, grayish aspect. It grows rapidly upon potato, forming a thick, moist, brilliant layer of an orange-red color. Under the microscope it appears as an immobile micrococcus provided with a clear, translucent capsule and frequently united " enchâine " of two, three, and four.

The germ is probably a variety of the staphylococcus pyogenes aureus. It is virulent to other animals ; 5 c.c. of a bouillon culture injected into the jugular of a horse produces death in three days, with high fever and articular enlargements. At the autopsy lobar pneumonia, suppuration of the articulations of the members and that between the atlas and axis were found. Specific diplococci were abundant.

Preventive measures: 1. Treatment of infected or suspected mares. 2. Disinfection of the stable. 3. Antisepsis of the umbilical cord of the newborn. 4. Disinfection of the penis of the stallion after each service of suspected mares.

The above rules, carefully observed, have succeeded in eradicating the disease from infected stables.—*Monatsch. für präkt. Thierk.*

ANTISTREPTOCOCCUS SERUM IN ANASARCA. Anasarca may be a complication of diverse affections in which the streptococcus pyogenes, that of strangles, and the typhic cocobacillus may exist alone or associated in a varied manner. In practice one cannot diagnose the particular kind of anasarca, and, as the serum treatment is harmless, Pécus recommends it in all cases at the beginning. The result may be expected to be positive when it is a question of the streptococcus alone or associated with other bacteria, and negative when the disease is caused by another microbe.—*Ann. de Méd. Vét.*

A NEW BLISTER. The following formula was prepared by Rasset, and has given excellent results in vesiccation without producing permanent blemishes: ℞.—Unguentum basilica, 100 g.; thapsiæ, 5 g.—M. It can be preserved for a long time.—*Bull. de la Soc. Cent. de Méd Vét.*

ACTION OF ALCOHOL UPON THE GASTRIC JUICE. Introduced into the stomach, alcohol increases the flow of the gastric juice. This result is only partly due to its local action. Frouin and Molinier have obtained the same results with alcohol introduced into the rectum in dogs with a gastric fistula.

They conclude: Alcohol produces a hypersecretion of the gastric juice, which is not alone due to its local action, since it produces the same result by its direct introduction into the intestine; that this is due to a special action upon the nervous system, and may continue for several days, and even increase in intensity.—*Ann. de Méd. Vét.*

VAGINAL GESTATION. De Bruin, of Utrecht, is of the opinion that these cases are merely displacements from the uterus into the vagina, on the surface of which they produce, under special conditions, more or less pronounced alterations.

Strebel takes a different view, and cites an instance in a heifer. A soft mass resembling the fœtal membranes was protruding from the vulva. In the vagina was found a mass as large as a man's fist and adherent to the mucous membrane. The mass was withdrawn with slight traction, and on its surface were seen over a small area small proliferations adhering to the vagina, but no cotyledons. The sac contained a well-formed male fœtus. The uterine neck was firmly closed, and exploration of the right flank revealed a second uterine fœtus. The latter was born in a normal manner at the end of gestation.

Strebel does not believe that the fœtus was expelled from the uterus; that it is not probable that this mass would have been tolerated in the vagina as a foreign body, and that the fœtal placenta would not have formed adhesions with the vaginal mucous membrane.—*Ann. de Méd. Vét.*

CRICOTOMY FOR ROARING. The effects from section of the cricoid have been denied because the spreading of the cricoid cartilage did not widen the laryngotracheal canal. Blanchard operated on fifteen cases. Four were entirely relieved, three much improved.

Garcin communicates his results of fifty cases as follows:

Two race-horses have won races after the operation, which they could not do before.

One steeplechaser, with complete result.

One work horse, with good success.

Two race-horses, with good results.

One work horse, with complete success.

One driving horse, with complete success.

One work horse, with a surprising result.

The evidence of different veterinarians seems to be contradictory.—*Rec. de Méd. Vét.*

ANTIRABIC TREATMENT. At the Institute of Vienna 1166 cases received the inoculation treatment for rabies: Male adults, 466 (39.3 per cent.); female, 205 (17.3 per cent.); children, 514 (43.5 per cent.); 16 of these (1.45 per cent.) died. Six of these cases should be excluded, because the disease developed within fifteen days, the time required to establish immunity, thus giving an actual mortality of only 0.94 per cent. Wounds of the head and face and the hands were the most fatal.—*Oesterr. Monatsch. für Thierheilk.*

REPORTS OF CASES.

AN ABNORMAL FŒTUS.

By J. H. Luff, Ph.G., V.S.,
HUDSON, N. Y.

On March 18th I was called several miles in the country to deliver a calf from a Jersey heifer, the age of which was eighteen months. I arrived there about 10 o'clock at night, and found the patient in much pain and very uneasy.

I was told that she had been straining most of the day, and that a local "cow doctor" had been trying for three or four hours to deliver the calf.

As she was lying with the hindquarters in the gutter, I had her turned and the bedding arranged so as to have these parts the highest. She seemed to prefer the recumbent position, so I did not insist upon her getting up. I made an examination, and found pressing tightly into the passage what seemed to be a knee, but it was too large. What it was will be explained later.

The straining of the patient was so constant that I at once injected well into the uterus, with a small rubber hose three feet long and a bulb syringe, fluid extract lobelia, ℥ij; glycerinum, ℥j; aqua fervens, O iv. I use the fluid extract because you can have the infusion instantly by mixing with the warm water, while the method of using the herb requires at least an hour, and this is valuable time to waste in a cold barn with arms bare and the outer clothing removed.

After ten or fifteen minutes I inserted the repeller and had an assistant push back the fœtus; I then searched for the feet, but could not reach them. The head was bent back on the side, and from the looseness of the teeth I knew the fœtus had been dead several days.

After several ineffectual attempts to pull the head straight I used the blunt hook in the intermaxillary space of the lower jaw; that brought the head up at once. But where were the front legs? After searching again and reaching as far as I could I concluded that we had an abnormality.

Without removing the hook (always hold what you get, or you may not get it soon again) I put a noose around the neck, and with some assistance delivered the calf. I then realized that what I felt on the first examination was the inferior extremity of the scapula and point of shoulder.

Both of the front legs below the scapula were absent, although the skin at that point was smooth and entire, and the body was normal in every other way.

I thought a report of the case might be interesting in a pathological way, as I have never heard of a two-legged calf before.

ACTINOMYCOSIS IN A DOG.

BY H. W. GOHN, V.S.,

ST. JOHN'S, MICH.

I WAS called to see a mastiff that had been bitten over the upper third of the tibia. The injury did not seem severe, and mild antiseptic treatment was given, with the result that recovery seemed rapid, and no more was heard of the case until six weeks later, when the animal was brought to me with considerable swelling of the parts and pus discharging from four or five openings. In order to inject these tracts it was necessary to enlarge some of the openings where the new-growth was found to be of a very firm nature. Deciding to use a caustic, I injected once daily, for four or five days, a dilution of hydrochloric acid, after which it healed promptly, with little thickening. However, a few weeks later the owner reported the animal as having some warts in his mouth, and when I again examined him I found the mucous membrane of the mouth covered with almost innumerable growths, which varied in size from that of a pin-head beneath the membrane to those which projected from it the size of a bean, while from the corners of the mouth they hung in a mass resembling a cluster of grapes.

The tongue was covered, and on opening the mouth wide there was no visible mucous membrane that was not studded with these growths. This condition was accompanied with a very fetid odor. Securing the animal, I removed one of the growths and had it examined microscopically, which proved it to be actinomycotic.

The treatment given was potassium iodide internally, and a good recovery resulted, with no recurrences in several years, during which I frequently saw the animal.

I was slow to pronounce the case actinomycosis before the microscopical examination, as I had never seen it mentioned in any veterinary work. It was, however, suggested by Steele, in his treatise on *The Ox* (p. 140). Since the treatment of this case, however, I have found mention of one in Friedberger and Frohner's *Pathology* and one case reported in the columns of the JOURNAL. The inoculation must have occurred at the time of the first injury or soon after, developing in due time the suppurating tracts from which, by licking, the animal inoculated the fungus into the mucous membrane of the mouth.

POISONING BY FEEDING ON SINAPIS NIGRA.[1]

By F. J. ROUB, V.S.,
MONROE, WIS.

ON November 23, 1901, at 1 P.M., I was called by 'phone, by a Mr. Lawver, living twelve miles west, to come at once; very sick cows. I informed Mr. Lawver that I could not comply with his wish before evening, as there were two calls for my services just previous to his call. He stated that if I could not come by 5 P.M., not to come at all, and very little did I care to make the visit, for I knew he was in the habit of patronizing empirics and was discourteous with qualified practitioners. After making the two calls previous to Mr. Lawver's, and having ample time to arrive at his farm by 5 P.M., I concluded to go. On my arrival, you can imagine my surprise; in front of the barn lay ten cadavers, minus their epidermis, and one cow in the barn in the last throes of death, and seven cows that were very sick. I was informed by the owner that all of them would die, for the symptoms were in unison with the ones that died. This was the owner's prognosis, not mine. All were milk cows, and were highly fed in order to produce greater profits by a large flow of milk, and showed better care than the majority of cows receive. After taking in the surroundings and considering everything in a good hygienic condition, and being at a loss as to what the cause originated from, I asked the owner for information in regard to feeding, watering, and change of pasture. The owner stated as follows: "I stable them at night, feed clover hay with a ration of ground feed night and morning, turn them out mornings, feed shock-corn in the yard; the remainder of the time they run at large over the farm." Bear in mind, November 23d, at 5 P.M., I arrived at Mr. Lawver's farm; but the day previous, the 22d, at 3 P.M., these cows were turned into a small lot, about four acres, situated on river bottom, between the barn and river, the lot being utilized to raise corn for early feed in autumn; after the corn was cut off, mustard grew up in abundance, and, as there had been no stock allowed to run on this lot previous to November 22d, the owner thought he would turn his cows in and let them pick up what rough feed there was left, the cows being in from 3 P.M. until 5 P.M., only two hours, then being housed in the barn for the night, and given their evening ration; all of them feeding normally; three hours later he noticed four of the cows being sick, the owner sending at once for an Illinois empiric. As near as I could learn, his treatment was hot teas, coffee, monkshood, Ward's liniment and painkiller. As more of the herd continued to get sick, and by midnight two had died, the doctor, if I may call him such, declined to give further treatment, departing for his home, leaving the owner alone to battle with the afflicted cows.

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[1] Read at the annual meeting of the Wisconsin Society of Veterinary Graduates.

The cows continued to get sick one after another, and so they continued to die, at intervals, from one to two hours apart. As I stated before, this was on the 22d, and I was called on the 23d, at 1 P.M., but did not arrive at destination until 5 P.M.; ten cows were dead and the eleventh one dying, and seven more sick, and seemingly going in the same channel.

At this point I became very anxious to find the real cause, anticipating that by holding an autopsy on the two cows that died just previous to my arrival it might reveal to me the much-desired information. Proceeding with the autopsy, and dissecting through into the viscera, there was an abundance of yellow fluid in the abdominal cavity, and very strong fumes of mustard being present; speaking of this to the owner, he informed me that mustard grew up in abundance in this lot, and that he noticed the cows eating it, and they seemed to relish the same. Continuing with the autopsy, there were from three to four gallons of this yellow fluid in the abdominal cavity; bladder full and of the same color; over the walls of the rumen following the bloodvessels and lymphatics there was a yellow, gelatinous mass, varying from one to three inches in thickness; the intestinal tract showed a slight enteric condition; on opening the rumen I found from one peck to a half-bushel of mustard stalks and leaves. Satisfying my own mind that the trouble was due to mustard poisoning, I turned my attention to the seven head in the barn that were sick.

Owner's prognosis: all will die. My prognosis was zero.

Cows standing, with dull, haggard expression. Extremities cold. Some tympany; respirations labored; could be made to move only by main force; then would stagger and fall unless supported, showing that locomotion was greatly interfered with. When fatal would stand in one position without moving, until they would fall and lie in a semi-conscious condition from one to three hours before death.

Treatment. I ordered one and one-half pounds of sulphate of soda to each one of the sick cows, and to follow up with one pound every twelve hours, until the bowels were moved; in addition, I gave nux vomica and spirits of nitre. The seven head under this treatment made a fine recovery and regained the normal flow of milk.

NEW PUBLICATION.

Department of Agriculture: *Seventeenth Annual Report of the Bureau of Animal Industry.* Dr. D. E. Salmon, Chief of the Bureau.

This report, covering nearly every subject of importance to the live-stock industries of our country, is a book of nearly 650 pages. It is replete with beautiful illustrations of matters of great interest to the veterinarian. The various divisions of the Bureau have their special reports and tables. The infectious and contagious diseases of animals, the meat-inspection work, the exportation of live animals, and the great advances in breeding are copiously treated of. Some thirty-seven pages are devoted to the consideration of rabies One school fails to record a single case in twelve years. Most veterinarians have only heard of cases in the human family.

LEGISLATION.

SENATE Bill No. 88, of the Massachusetts Legislature, creating a single Chief of Cattle Commission, has passed both Houses of the Legislature and has been signed by Governor Crane.

Kansas City is fast looming up as a veterinary medical centre. Its schools claim an attendance of about one hundred and forty students the present college year.

EDITORIALS.

A QUARTER OF A CENTURY'S USEFULNESS.

OUR esteemed contemporary the *American Veterinary Review* has turned the twenty-fifth milestone of its existence in the journalistic pathway of veterinary medicine.

Given birth by the U. S. V. M. A., it served for many years as the chronicle of the work of the members of that organization, and accomplished much in attracting attention to the strength and work of many of the individual members of the national organization.

The first twenty years of its career it was most ably edited by that great teacher, writer, and supporter of college and association power, A. Liautard, who, in maintaining a higher curriculum for our schools, a broader field of journalistic work, added much at all times to the worth and scope of American veterinary literature.

Like many other scientific journals, it has never had the support of the veterinary profession that it deserved, and its editing and publication have been a matter of loving devotion to an adopted profession.

The high ethical standard established by its founder and chief editor for more than a score of years did much indeed to give standing and recognition to the birth and growth of a new profession in our country.

We wish for its present editorial direction and management the same grand results in the present cycle of years; a better financial support than it has ever had before; that it may not yield to any departure from the strong ethical lines it has well advocated, but in greater returns make broader and richer its field of usefulness in adding strength and value to future American veterinary literature.

COLUMELLA'S PROPOSITION.

THE continued interest shown in "Columella's" proposition for a solution of the commercial side of tuberculosis among the bovine species continues, and it is hoped that some *State* may inaugurate the plan suggested. Perhaps this the "Keystone State" might consider the feasibility of this plan, and we most earnestly recommend to the Pennsylvania State Live-stock Sanitary Board the proposition as well as the consideration of the various views expressed by those who have contributed to its consideration. It is important, and from it may develop some cattle insurance plan that might well grow under State supervision and direction.

OHIO'S SPLENDID TRIBUTE TO OUR LATE EDITOR, DR. RUSH SHIPPEN HUIDEKOPER.

THE Ohio Veterinary Medical Association feels, in common with all veterinarians throughout the United States, a desire to pay its tribute of respect to the memory of the late Dr. Rush Shippen Huidekoper, who was not alone a leader in thought, but also a foremost leader in action for the cause of the science to which he had turned out of pure love of the brute creation, and out of a sincere desire to alleviate the sufferings of the dumb friends of man.

To such a supremely elevated character, adorned as he was with all that the advanced thought and skill of scientific research and expert knowledge could confer, both as regards the general practice of medicine and surgery and the equally beneficent practice of animal pathology, mere words fail to convey a full appreciation of the measured thought of his value to the world, to the profession, and to his family, and especially to us as an organization working to dignify and elevate the profession which he so richly endowed by means of his vast knowledge and his sturdy activities.

Had Dr. Huidekoper done nothing more than what he accomplished in his splendid struggle for Congressional recognition of the veterinary profession in its relation to the military arm of the government, veterinarians everywhere would owe him a debt of grateful remembrance which no language could express; but he did far more than that, as we of the inner circle can testify, and therefore it is that we thus make known our desire to place upon the records of our Association this permanent tribute to his memory, and to

Resolve, That in the death of Dr. Huidekoper the veterinarians of America have lost a noble champion of their cause, both in military and civil life, and the profession will feel keenly the loss of one of its greatest exponents and practitioners; and it is further

Resolved, That a copy of this memorial be spread on the minutes of this Association, and also that copies be sent to the various veterinary journals for publication.

WILLIAM R. HOWE,
L. W. CARL,
W. J. TORRANCE,
Committee.

WILLIAM H. GRIBBLE,
Secretary.

OHIO'S TRIBUTE TO THE MEMORY OF THE LATE DR. A. W. CLEMENT.

At a meeting of the Ohio State Veterinary Medical Association, held at Columbus, Ohio, January 14 and 15, 1902, the following resolutions were adopted:

Whereas, We learn with regret of the recent death of Dr. Albert W. Clement, of Baltimore, Md., a fellow-practitioner who, by reason of the successful manner in which he has practised in his chosen profession for so many years, has established himself in our memories, and whom we wish to venerate as a man and as a fellow-practitioner, and,

Whereas, It has pleased the Omnipotent God to take from our profession such a noble, earnest, and valuable member, and,

Whereas, The Ohio State Veterinary Medical Association deeply deplores the loss of such a highly educated man, yet we feel that it is our duty to submit to the manifestations of wisdom of the Almighty God, and we therefore

Resolve, That the sincere sympathy of this Association be extended to his bereaved widow and family, and

Resolve, That a copy of these resolutions be sent to his widow, that a copy be spread on the books of this Association, and that copies be sent to the various veterinary journals for publication.

William R. Howe,
L. W. Carl,
W. J. Torrance,
Committee.

William H. Gribble,
Secretary.

A. V. M. A.

MINNEAPOLIS, MINN., SEPTEMBER, 1902.

Drs. Lyford and Brimhall, of Minneapolis, were in attendance at the winter meeting of the Iowa State Veterinary Association in the interest of the coming meeting of the A. V. M. A. in Minneapolis. They give the Iowa people credit for having an effective, hard-working association, and report a good time for themselves.

A committee was appointed by the Iowa Association for the purpose of getting Iowa veterinarians to attend the meeting of the International Association in the largest possible numbers. They will co-operate with the resident State secretary in this good work of insuring a record-breaking attendance from their State.

Every sign points toward a meeting of the A. V. M. A. in Minneapolis this fall that will be historical.

Drs. Reynolds and Brimhall attended the annual meeting of the Wisconsin State Association in the interests of the big meeting of the A. V. M. A. in Minneapolis this fall. The Wisconsin men have already taken steps to insure a good attendance from their State. A committee was appointed to assist the resident State secretary in this good work of keeping the meeting before the attention of the profession in that State.

NECROLOGY.

Dr. C. J. Carrick, of Pittsburg, Pa., a graduate of the Royal College of Veterinary Surgeons, died the latter part of February.

At Charleston, Ill., in March, Tarlton C. Miles, better known as "Farmer" Miles. Born near Frankfort, Ky., in 1825, he had reached the age of seventy-five years. He was one of the most successful operators on cryptorchids in this country. For many years he gave instructions to large bodies of students on his methods of operating on ridgelings. He had travelled well over the English-speaking world, operating before many of the most prominent European veterinarians. His two sons—one a graduate of the Montreal Veterinary College, the other a graduate of the Chicago Veterinary College—survive him.

SOCIETY NOTES.

The Allegheny County Veterinary Medical Association, which is very active in its work and has nearly all the veterinarians of that bailiwick in its membership list, was recently addressed by Dr. A. Leteve, of the medical profession, on "Tetanus." Dr. Leteve is Director of the Pasteur Institute Department of the Magee Pathological Institute.

Dr. J. J. Hougendoubler, formerly located at Harrisburg, Pa., is employed as Assistant Inspector in Bureau of Animal Industry, St. Louis, Mo.

CORRESPONDENCE.

DISCUSSION OF "COLUMELLA'S" PROPOSITION.

EDITOR OF THE JOURNAL OF COMPARATIVE MEDICINE, ETC.:

"COLUMELLA'S" plan for disposing of tuberculous cattle, outlined in THE JOURNAL OF COMPARATIVE MEDICINE, ETC., vol. xxiii., No. 1, appears to me to be a very good one. I believe that Pennsylvania, being a State in which more has been done than in any other to eradicate tuberculosis, is now ready for the adoption of this plan. I notice by the annual report of the State Veterinarian, Dr. Leonard Pearson, that there are on file in his office more applications for tuberculin tests of herds than can be granted on account of lack of funds. If this economical plan of disposing of the tuberculous cattle could be used instead of paying for diseased cattle out of the State appropriation, this money could be devoted entirely to testing cattle. In this way all the applications could be granted; also, the ability to secure better values than the State pays for tuberculous cattle would lead more and more herd owners to apply for tuberculin tests for their herds, and there would not be the necessity of refusing to grant these tests on account of deficiency in funds, even should the appropriation stand at the present sum of $40,000. In this way tuberculin testing of herds would finally become a universal practice in that State, and there would be speedy identification of all the tuberculous cattle in the State, which could be put in the care of licensees. I do not know of another State which is so well prepared for the plan of "Columella" as Pennsylvania. If Pennsylvania should demonstrate the feasibility of this plan the other States would probably soon follow its example.

There would probably be some irregularities in the handling of the tuberculous cattle on account of dishonesty of licensees, but these could soon be detected and rectified. Certainly the fear of an occasional violation should not deter us from adopting what seem to be salutary laws.

The improvement which the method makes over the Bang method lies in the fact that an owner can handle properly a herd of cattle all of which are tuberculous much easier than an owner can handle properly two herds, one of which is healthy and the other tuberculous. This step of creating licensees is the only one necessary to make the Pennsylvania plan the ideal one for the eradication of tuberculosis.

JOHN J. REPP,
Veterinarian to the Experiment Station, Ames, Iowa.

EDITOR OF THE JOURNAL OF COMPARATIVE MEDICINE, ETC.:

Regarding the "Columella" proposition for combating tuberculosis, my absence from home is the reason for so tardy a reply.

The proposition seems to me a very good one and worthy of notice. I have had considerable experience with this disease, and am frank enough to say we are not getting enough benefit for the money expended. No doubt there are some little details in "Columella's" proposition that would need revising to fit the different localities, etc., but, as a whole, it is good, and I am pleased to know the subject has come up for comment. Susquehanna County has probably as much tuberculosis as any county in the State, and in looking over my books I find that about 25 per cent. of all cows tested are tuberculous, and not more than 25 per cent. of this number have been far enough advanced to show physical symptoms; the rest could have been kept as "Columella" suggests, with a great saving both to the owner and to the State.

About three years ago I tested a herd of nine thoroughbred Holsteins, four of which were imported from Holland at an expense of six hundred dollars each. Of the nine tested six were condemned, and we could allow the owner only fifty dollars per head. The idea of keeping them in quarantine was suggested to the owner, but he said he did not have a suitable place to keep them, and so they were destroyed. Five of this number could have been kept and a nice income been realized from them. This is a sample of what I have often found, hence I strongly favor this part of the suggestion. I have supervised the killing of a great many cattle that could have been (in part, at least) used for food and been more wholesome than some that is daily sold at our local markets; but if such a thing should be suggested in this section, and under our present mode of doing, the majority of farmers would have no faith in the test, and would pronounce the whole thing a fake. But if a slaughter-house were established for the purpose, and under the supervision of an inspector, the feeling would be entirely different.

Yours respectfully,
E. E. TOWER, D.V.S.

MONTROSE, PA., March 21, 1902.

SOCIETY PROCEEDINGS.

OFFICIAL REPORT OF THE PROCEEDINGS OF THE FOURTEENTH ANNUAL MEETING OF THE IOWA STATE VETERINARY MEDICAL ASSOCIATION.

Held at Des Moines, Iowa, February 11 *and* 12, 1902.

FIRST DAY—*February* 11*th*.

Morning Session. The meeting was called to order at 9.45 o'clock, in Parlor I, Savery Hotel, by the President, Dr. P. O. Koto, of Forest City.

The Secretary announced that a system of card registration had been substituted for roll-call.

The Secretary read the minutes of the thirteenth annual meeting, which were approved as read.

The President delivered his address.

The Secretary read his report, as follows:

SECRETARY'S REPORT.

MR. PRESIDENT AND MEMBERS: It is by reason of the removal of Dr. John E. Brown from Iowa, and his consequent resignation from the office of Secretary of this Association, that I now make the report of the Secretary. The impaired health of Mrs. Brown necessitated the removal of Dr. Brown and family to a more equable climate. Chattanooga, Tennessee, was chosen as the most eligible place of residence, and it is in that city that the family now have their home. I have not the slightest doubt that I give expression to the feeling of all of you when I say that I greatly regret that it has been necessary for Dr. Brown to remove from Iowa and to sever his connection with this Association as an active member and as its Secretary. For eight years he served as Secretary and Treasurer of the Iowa State Veterinary Medical Association. During all of that time his services were so generously and unselfishly devoted to the interests of the organization that he won a warm place in the hearts of all its members and has always merited and received their praise. The present standing of this organization is due in a large measure to Dr. Brown's well-directed efforts. It is no easy task to take up and continue satisfactorily a work that has so prospered in the hands of the one who relinquishes it. It was, therefore, with reluctance that I assumed the duties of Secretary pro tempore last October, at the request of the President, Dr. P. O. Koto.

Owing to the fact that Dr. Brown had a considerable part of the books and papers of the Association packed with his goods, and that the goods were delayed in shipment to Chattanooga, the part of the material of the Association which was useful in carrying forward the work of the Secretary did not reach me until December 9th last, and, as a consequence, the work of getting up the programme and arranging for the meeting was delayed. For that reason the meeting is held later this year than is customary.

On November 9th I sent out to each member a circular letter asking for contributions to the programme of this meeting. As this was done in advance of receiving the list of members, and, as I had to depend upon my memory of who were and who were not members in mailing the letters, twenty-six members were missed. These members were reached by a subsequent communication after the list of members came into my hands.

After receiving the books containing the accounts with the members I sent to each member a statement of his account. This was done December 14th. In order to make more effective the attempt at collection I had a new form printed. The upper half of this form has printed upon it the directions to the members concerning the remittance and the article of the By-laws which covers the matter of membership fees and dues. The lower half contains the blank form for statement of account. These two halves are separated by perforations, so that the lower half may be torn off and sent with the remittance, to be receipted by the Treasurer, returned to the member, and held by him as his receipt. I believe all of the members have been given an opportunity to see this form.

On January 1st I found that the responses to my request for papers had not been liberal enough to insure a well-filled programme, so at that time I sent out a personal request for a paper or report of a case to a number of members whom I thought would give their help. From this appeal I got enough favorable replies to make the programme what you see to-day.

I would observe at this point that the majority of the members are not ready enough to supply a paper or report to the programme. This keeps the Secretary in a constant state of anxiety lest the time for the meeting arrive without an adequate programme. You are all aware that the meeting would be an absolute failure but for the papers and reports submitted. In fact, without these it would hardly be necessary to have a meeting at all. It could in any event be only a business meeting. It is equally well known that the Secretary without the co-operation of the members is a hopeless and useless part of the machinery of the Association. Why, then, should it be made for him such a difficult task to secure contributions to the programme? Will you not wake up to a proper realization of the urgency and importance of replying to these requests of your Secretary, and even before this meeting comes to an end may the Secretary not have promise of a paper or report of a case from a goodly number of you? You can decide in the period which intervenes between now and the next meeting what subject you will write upon.

On looking up the records it was found that twelve veterinarians still residing in the State were once members, but have been suspended for non-payment of dues. A letter, with which was enclosed a statement of dues owing at time of suspension, was sent to each of these, asking him to pay his arrears and apply for re-instatement. A few replies were received, which will be referred to at another time.

To each of several members who have left the State, but who are in arrears in their dues, a letter was sent, with enclosure of a statement of arrears, requesting that these arrears be paid and that application be made for re-instatement to membership. The responses to these requests will be referred to at another time.

On January 7, 1902, as near as I was able to learn, there were in the State fifty-seven graduated veterinarians who are not members of the Iowa State Veterinary Medical Association. A few of these had been members at one time, but had resigned. To each of these was sent a circular letter urging him to make application for membership. Accompanying this was sent a blank application form. I thought best to get out a new form for this purpose. The old form was very unhandy and somewhat antiquated, and the supply had been pretty well exhausted. In this new form the printing is all on one page, and the slip is of such size that it can easily be filed without folding. The entire substance will in this way be in such form that it can be taken in at a glance. It is divided into four sections: First, there is set forth the article of the constitution governing the matter of membership, together with some instructions. Second, there is a blank application form. Third, there is a blank for report of Board of Censors. Fourth, there is a blank form for report of the Secretary on the result of the ballot of the Association upon the candidate.

To this date eight applications for membership have been received by the Secretary. This number will, I hope, be greatly increased during this meeting. I would observe here that it is rather surprising that more veterinarians are not awake to the great advantages of membership in our State organization. A member not only has the consciousness that he is strengthening himself by uniting with others in this way, but also the consciousness that he and his associates are elevating the profession of veterinary medicine and bringing it to the attention of the laity, and in this way commanding their commendation of our noble pursuit. A veterinarian cannot do better for himself or for his profession than to carry an honorable membership in a State veterinary organization. It is to be hoped that all the members will unite in an effort to bring every eligible veterinarian in the State within the bounds of our Association.

On January 17th the programme and the announcement for this meeting were mailed to each veterinarian in the State, whether a member or not, and to each honorary member; also, a copy of each was sent to each of several prominent newspapers and agricultural journals, with the request that they be used as subject-matter for the news columns. This request was complied with in every case that I was able to trace.

In addition to this a general correspondence has been kept up with various members and others when occasion required. I would like to say here that the Secretary would be pleased to have a letter from each member and veterinarian not a member at least once a year. I regret to say that this pleasure has not been had during my incumbency to date.

I would call your attention to the following statement:

Veterinarians in Iowa		154
Resigned from membership in the I. S. V. M. A. (in State, 3; out of State, 4 (?)	7	
Suspended from membership (in State, 17; out of State, 22)	39	
Honorary members (in State, 1; out of State, 9)	10	
Active members (in State, 76; out of State, 22)	98	
Active members in good standing		62
(*a*) With dues paid up to and including 1902	27	
(*b*) With dues paid up to and including 1901	21	
(*c*) With dues paid up to and including 1900	14	
Members not in good standing		36
(*a*) Only three years in arrears	7	
(*b*) Only four years in arrears	2	
(*c*) Only five years in arrears	4	
(*d*) Only six years in arrears	6	
(*e*) Only seven years in arrears	7	
(*f*) Only eight years in arrears	10	

As the sum required for yearly dues is only one dollar, it is no small wonder that so many would allow themselves to fall into delinquency. I am glad to say, however, that my attempts at collection have been quite successful thus far. It is probable that if statements were regularly sent the members would have their attention directed to the fact that they really owe the Association something, and that they would be more prompt in payment. This plan should be given a thorough test.

I would refer briefly to Article IV. of the By-laws, as amended at the 1897 meeting, which reads as follows: "Each member, on being admitted to membership, shall pay the sum of two dollars, and shall annually thereafter pay one dollar in advance to the Association; and any member in arrears more than two years shall be suspended until said arrears are paid."

It seems to me that the words "shall be suspended" in themselves work a suspension when a member has fallen into arrears more than two years; or, at least, these words make suspension compulsory on the part of the Association. If a member were suspended when he comes into arrears as much as three years, and it were generally known that he would be so suspended, I doubt if many would allow themselves to become delinquent to such an extent. At all events, if the member were promptly suspended at that time his dues would not accrue any further, and he would never be called upon to pay more than three dollars back dues in order to secure reinstatement. Under such conditions he would be much more likely to pay up arrears and ask for reinstatement than if his dues were allowed to accrue for five or six years or longer. This is a matter upon which the Association should take some action at this meeting.

Following is a statement of the finances covering the period of my incumbency, from October 1, 1901, to February 10, 1902:

Receipts.		
Cash from J. E. Brown	$66 57	
Refund, American Express Company	1 35	
Cash for dues for 1902	26 00	
Cash for back dues	35 75	
Membership fees	12 00	
		$141 67
Disbursements.		
Express	$2 00	
Stationery	17 90	
Blanks	3 50	
Stamps	15 50	
Telegrams	90	
Announcements	1 50	
Programmes	3 00	
Badges and express	14 20	
Secretary's expenses	14 62	
Cards	2 25	
		75 37
Balance handed to the Treasurer		$66 30

I desire to return my thanks to all those who have so willingly assisted the Secretary in his work during the preparation for this meeting.

Respectfully submitted,

JOHN J. REPP,
Secretary pro tem.

TREASURER'S REPORT.

The Treasurer submitted the following report:

1. For JOHN E. BROWN.—*Receipts.*

Cash on hand from twelfth annual meeting	$78 80	
Cash for dues for thirteenth annual meeting	38 50	
Cash for membership fees	8 00	
		$125 30

Disbursements.

Presentation of canes	$33 55	
Hall rent, thirteenth annual meeting	5 00	
Secretary's expenses	10 38	
Postage	1 00	
Stationery	1 25	
Paper	35	
Stenography	1 25	
Express, Oskaloosa to Ames	1 10	
Express, Waynesville to Ames	1 35	
Letter-heads	3 50	
		58 73
Balance to John J. Repp		$66 57

2. For SELF.—*Receipts.*

Cash from John E. Brown	$66 57	
Refund, American Express Company	1 35	
Cash for dues for fourteenth annual meeting	26 00	
Cash for back dues	35 75	
Cash for membership fees	12 00	
		$141 67

Disbursements.

Express	$ 2 00	
Stationery	17 90	
Blanks	3 50	
Stamps	15 50	
Telegrams	90	
Announcements	1 50	
Programmes	3 00	
Badges and express	14 20	
Secretary's expense	14 62	
Cards	2 25	
		75 37
Balance in Treasurer's hands		$66 30

Respectfully submitted,

JOHN J. REPP,
Treasurer pro tem.

The following committee was appointed to audit the Treasurer's accounts: Dr. H. L. Stewart, Dr. C. A. Clinton, Dr. George M. Walrod.

The Auditing Committee made the following report:

REPORT OF AUDITING COMMITTEE.

DES MOINES, IOWA, February 11, 1902.

We, the Auditing Committee for the fourteenth annual meeting of the Iowa State Veterinary Medical Association, hereby certify that we have examined the above account of the Treasurer, and that we find it correct.

GEORGE M. WALROD,
C. A. CLINTON,
H. L. STEWART,
Auditing Committee.

By vote of the Association the report was adopted.

The Secretary read communications from various members and others. Of especial interest was the following from Dr. John E. Brown, of Chattanooga, Tenn., former Secretary of the Association:

CHATTANOOGA, TENN., January 28, 1902.

To My Dear Old Friends and Members of the Iowa State Veterinary Medical Association—

GENTLEMEN: The announcement and most excellent programme of the next annual meeting of the Association, to be held on February 11th and 12th, are before me.

I can scarcely bring myself to realize that my position, geographically, is so remote from you that henceforth I must be deprived of the exceeding pleasure of attending these meetings. That I can no longer be, in person, one of you with whom it was my privilege to mingle so pleasantly and so profitably for so many years is to me a matter of very deep regret.

Side by side we have worked together for the advancement of the various interests of our profession, without a hitch, and I cherish the thought that after all these years I can think of each and every member as a warm personal friend as well as co-operator in association matters. While it is true I am temporarily, through force of circumstances, out of practice, I am still, in the true sense of the term, a veterinarian, and your interests are mine. I hope to live to see the day when the veterinary profession will be honored and appreciated just as much as any other, and will then rejoice as heartily as anyone. Simply treating the sick and injured horses, cattle, and other animals is not the highest calling of the profession. Thus far it is looked upon more as a trade with a financial basis of valuation. Just as soon as the people learn that veterinarians stand for higher sanitary conditions—conditions which mean better health and more happiness to the human race as well as to the lower animals—and the veterinary profession proves that its members are true, educated, scientific sanitarians, then, but not until then, will the profession enjoy the high respect, confidence, and power, socially and professionally, that every progressive veterinarian knows it should. Iowa in the years past has made a beautiful start in the right direction in this respect. She has set a noteworthy pace for her sister States to follow. I do not fear that in the years to come she will fall behind the pace she has already set.

The North and West are far better suited to veterinary practice than the South. The ratio of opportunities for veterinarians in the North and the South is about ten to one in favor of the former. The stock interests here are undeveloped. As a rule, the stock seen through the country is very inferior, both in quantity and in quality, as compared with the Northern and Western States. There is a gradual improvement in the stock interests throughout the South, and sooner or later a fertile field for veterinarians will open.

We as a family are greatly enjoying the modified winter temperature, and are passing the winter with decidedly improved health. While we do and long will miss the familiar faces and cheery "hellos" of our Iowa friends, these changes go a long way toward making us like our new home "way down in Dixie."

And now, my friends, while it becomes my unpleasant duty to present my resignation as Secretary and active worker in the Iowa State Veterinary Medical Association, in spirit I will still be with you, especially on February 11th and 12th. I shall cherish the kindest remembrances of the Association, and will ever rejoice in any and all of its achievements.

In a parting word I would, if I could, inspire each Iowa veterinarian with a still greater interest in the State Association and loyalty to its interests. Combine your efforts, concentrate your forces, permit naught but harmony in your ranks, and your progress will mean success; also, let me bespeak for my successor in office the same loyal, courteous treatment you have always accorded to me.

Long may you prosper. Remember my latch-string is out to any member who may ever happen to journey this way.

Ever yours, with best wishes,
J. E. BROWN.

Dr. Gibson moved that a special committee of three be appointed by the President to draft resolutions in regard to Dr. John E. Brown, former Secretary of the Association. This motion prevailed.

The President appointed the following committee: Dr. J. I. Gibson, Dr. John J. Repp, Dr. George A. Scott.

The Board of Censors reported favorably upon the following applicants for membership: Dr. G. L. Buffington, Baxter; Dr. N. A. Kippen, Riceville; Dr. F. F. Parker, Oskaloosa; Dr. J. S. Potter, Iowa City; Dr. John V. Jewell, Le Mars.

The President appointed as tellers Dr. S. H. Kingery and Dr. C. E. Stewart.

On ballot by the Association the following were elected to active membership: Dr. G. L. Buffington, Dr. N. A. Kippen, Dr. F. F. Parker, Dr. J. S. Potter.

On motion, the ballot on the application of Dr. John V. Jewell was postponed indefinitely because no one was present who knew Dr. Jewell well enough to inform the members fully in regard to him.

Adjournment was taken to 1.30 P.M.

Afternoon Session. Meeting called to order by President Koto at 1.30 o'clock.

New business was taken up.

The Secretary moved that all members three years or more in arrears in dues be suspended until all back dues are paid. Seconded by Dr. Kingery. The Secretary then explained that this motion was in accordance with the provision of Article IV. of the By-laws of the Association.

Dr. Walrod moved to amend the motion so as to exclude from suspension all those who would pay their dues before adjournment of the meeting for the afternoon. This amendment was duly seconded, put to a vote, and carried.

On vote, the motion as amended was adopted. The Secretary then read a list of thirty-six members to whom this action would apply.

Dr. Clinton moved to instruct the Secretary to send a registered communication to each member suspended, notifying him of his suspension and stating that all back dues must be paid before he could be reinstated. This was seconded, put to a vote, and adopted.

Dr. Kingery moved that suspended members who desire reinstatement must, after paying back dues, apply for reinstatement, and that the application must be submitted to a vote of the Association by ballot; seconded by Dr. Clinton, put to a vote, and carried.

On motion, Dr. John E. Brown, Chattanooga, Tenn., and Dr. H. E. Titus, Lafayette, Ind., both active members with dues paid up, were elected to honorary membership for the period during which they reside outside of the State.

In the absence of the author, the Secretary read Dr. Hamilton's report of "A Case of Anthrax in a Horse."[1]

As Dr. Simpson was not present, his report on "Chronic Atrophic Orchitis in a Bull"[2] was read by Dr. Kingery.

The Board of Censors reported favorably upon the following applications for membership: Dr. A. B. Wilmoth, Des Moines; Dr. A. A. Adamson, Newton; Dr. T. F. McEvers, Colfax.

The President appointed as tellers Dr. C. E. Stewart and Dr. P. Malcolm.

On ballot of the Association the following were elected to active membership: Dr. A. B. Wilmoth, Dr. A. A. Adamson, and Dr. T. F. McEvers.

The Secretary moved to reinstate Dr. W. A. McClanahan, who had been suspended for non-payment of dues, to active membership.

On ballot of the Association Dr. McClanahan was reinstated. At this point, on motion, the Association went into secret session.

Dr. Repp moved that the non-graduate practitioners be given no more recognition than any other visitors; seconded.

After some discussion, Dr. Austin moved to amend so as to extend an invitation to all except registered non-graduates to attend the meetings. This was fully debated, and, on vote, was defeated.

The original motion was then voted upon and carried.

At 6.30, on motion, adjournment was taken to 8 P.M.

Evening Session. Called to order by President Koto at 8.30 o'clock.

The President appointed Dr. J. I. Gibson and Dr. George A. Scott to fill vacancies on Committee on Resolutions due to the absence of Dr. G. E. Noble and Dr. William Hamilton.

The report of the Committee on Sanitation was then made by the Chairman, Dr. T. A. Shipley.

(To be continued.)

INDIANA STATE VETERINARY ASSOCIATION.

THIS Association held its twenty-sixth semi-annual meeting in the State House at Indianapolis, Ind., January 9, 1902. The meeting was called to order at 1 P.M. by the President, J. C. Rodgers, of Anderson, Ind. On motion, the regular order of business was suspended, all of the members repairing to a clinic-room previously prepared by the Programme Committee. The following cases and operations were witnessed by eighty gentlemen of the profession: Spaying bitches, by Dr. G. H. Roberts and Dr. J. W. Klotz; median neurectomy, by Dr. P. O. O'Rear; peroneal neurectomy, by Dr. Frank W. Brewer; cryptorchid operation and ovariotomy, by Dr. J. W. Klotz; high plantar neurectomy, by Dr. E. H. Pritchard; and tenotomy, by Dr. J. W. Klotz. All these operations were performed under anæsthesia.

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[1] See p. 201.

[2] See p. 203.

Dr. R. A. Craig exhibited some very fine specimens of glanders, nasal chambers, and lungs. There was a very interesting case of valvular insufficiency and hypertrophy of the heart in a gray gelding belonging to the Indianapolis Fire Department.

The meeting was called to order by the President at 7.30 P.M. After the reading of reports of the several committees the following officers were elected for the present year:

W. F. Myers, President; W. B. Wallace, Vice-President; O. L. Boor, Treasurer; G. H. Roberts, Secretary.

Some very interesting papers followed: Dr. F. W. Anderman read a paper on "Cerebro-spinal Meningitis," which was prepared as the result of an epizoötic outbreak. This paper was well discussed. Dr. F. W. Brewer read a very valuable paper on "Neurectomy," which showed that the doctor was conversant with this subject. Dr. L. C. Hoover being absent, his paper on "Laminitis" was read by Dr. P. O. O'Rear. A lengthy discussion followed. Dr. O. L. Boor read a paper on "Some Complications of Influenza." The complication that was generally discussed was nephritis.

The following gentlemen were present: Drs. O. L. Boor, Muncie; J. O. Greeson, Kokomo; J. W. Klotz, Noblesville; W. F. Meyers, Fort Wayne; P. O. O'Rear, Indianapolis; James Crail, Shelbyville; J. B. Kinter, Danville; C. P. Wilson, Greenfield; Robert Harper, Indianapolis; G. H. Roberts, Indianapolis; John E. Pritchard, Indianapolis; J. M. Pattison, Connersville; J. C. Rodger, Anderson; and I. E. Scripture, Frankfort.

The following new members were admitted: J. D. Reynierson, Thorntown; J. G. Highaway, Ladoga; E. C. Carpenter, Bloomington; W. B. Wallace, Marion; E. N. Stout, Stockwell; R. A. Carig, Lafayette; H. E. Titus, Lafayette; D. C. Smith, Frankfort; N. B. Combs, Mulberry; F. W. Brewer, Southport; Parker Justice, Delphi; and E. M. Bronson, Portland.

The Association adjourned to meet in September.

GEORGE H. ROBERTS,
Secretary.

MINNESOTA STATE VETERINARY MEDICAL ASSOCIATION.

THE tenth semi-annual meeting of the Association was called to order by the President, Dr. J. N. Gould, at the Merchants' Hotel, in St. Paul, at 2 P.M., January 15, 1902.

The following members were present and responded to roll-call: Drs. C. C. Lyford, M. H. Reynolds, S. D. Brimhall, R. Price, L. Hay, K. J. McKenzie, S. H. Ward, G. A. Dallamore, J. G. Annand, J. N. Gould, George McGillivary, J. W. Gould, B. A. Pomeroy, H. C. Lyons, J. S. Butler, H. C. Peters, M. J. Sexton, F. H. Farmer, E. T. Frank, C. T. Eckles, J. P

Foster, R. La Pointe, John McKay, J. W. Cook, D. M. McDonald, J. M. Lambert, Oscar Rydell, F. A. Illstrup, J. J. Findley, George Ed. Leech, and R. H. Jerner.

The Treasurer's report was read and accepted.

The following applicants were duly elected to membership: Dr. R. K. Jerner (O. V. C , '96), Chatfield, Minn.; Dr. Edward L. Kalb (O. V. C., '93), Rochester, Minn.; Dr. George Ed. Leech (C. V. C., '91), Winona, Minn.; Dr. J. J. Finlay (O. V. C., '88), Duluth, Minn.

Dr. D. M. McDonald reported for the Committee on Colleges. Dr. Hay read his report on recent veterinary literature pertaining to medicine, describing some interesting cases of poisoning by overdoses of sodium hyposulphite. Dr. Hay recommended the administration of potassium iodide in ounce doses a short time prior to parturition as a prophylactic measure to prevent parturient paresis.

Dr. Price next read his report on bacteriology. This report brought out a lively discussion on tetanus and antitoxins.

Dr. Annand's report on surgery came next, describing a new operation for the treatment of impervious urachus. Dr. Annand also discussed the treatment of indolent summer wounds; also the best method of overcoming spasmodic contraction of the os uteri.

Dr. Brimhall next reported for the Committee on Infectious Diseases, stating that there had been 1235 cases examined for glanders during the past year; 500 had been tested with mallein and 325 had been condemned and killed. There had been 9982 cattle tested for tuberculosis, of which 458 reacted and 315 had been killed. Hog cholera had not been prevalent. There had been 90 cases of actinomycosis reported, of which 20 cases were condemned as not fit for food purposes. Blackleg existed in four counties. Hemorrhagic septicæmia had been reported from several counties.

Dr. Reynolds next reported for the Committee on Legislation and Empirics. The doctor proposed a committee of three to take charge of the prosecution of quacks. On motion, a committee of three was appointed. The committee appointed was Drs. S. H. Ward, M. H. Reynolds, and J. S. Butler.

The election of officers then took place, and resulted as follows:

President, Dr. C. C. Lyford, of Minneapolis, Minn.; First Vice-President, Dr. E. T. Frank, of Warren, Minn.; Second Vice-President, Dr. J. P. Foster, of Selby, South Dakota; Secretary and Treasurer, Dr. K. J. McKenzie, of Northeld, Minn.; Trustees, Drs. J. W. Cook, H. C. Peters, and M. H. Reynolds.

On motion, a committee of three was appointed to draw up resolutions expressing our sympathies and feelings toward Dr. Youngberg, and also regarding the death of Dr. Huidekoper. The committee appointed was Drs. Brimhall, Frank, and Price.

RESOLUTIONS.

We, the members of the Minnesota State Veterinary Medical Association, learn with sincere gratification of the markedly improved condition and hope for a speedy recovery of our esteemed colleague, Dr. A. Youngberg, of Lake Park, Minn.

Resolved, That a copy of the above be spread upon our minutes and that a copy of the same be sent to Dr. Youngberg by our Secretary.

DR. E. T. FRANK,
DR. R. PRICE,
DR. S. D. BRIMHALL,
Committee.

WHEREAS, the Minnesota State Veterinary Medical Association learns with regret of the decease of our most eminent and esteemed colleague, Dr. Rush Shippen Huidekoper; we feel that in his death the veterinary profession has lost a most brilliant and untiring worker; therefore, be it

Resolved, That we hereby express our appreciation of his unselfish life-work for his profession and our sorrow at his death.

DR. BRIMHALL,
DR. FRANK,
DR. PRICE,
Committee.

Adjournment for supper was taken.

After supper the members met at the State Experimental Station, where several cases were exhibited that had been operated upon at previous meetings, among which were two cases of capped hock that had been operated upon two years previous; they had proven quite a success. Drs. Reynolds and Peters operated for the repulsion of a fourth molar, performing Williams' operation, removing the outer plate of the alveolus. Dr. Lyford exhibited several cases sent over from his infirmary in Minneapolis.

Thursday forenoon was spent at the bacteriological laboratory of the State University, where the members were entertained by Dr. Westbrook, the bacteriologist, and Dr. S. D. Brimhall. The members' visit to the laboratory proved a profitable as well as an enjoyable forenoon.

Thursday afternoon the meeting was again called to order at the Merchants' Hotel, where the following paper was read: "Clinical Notes on Contagious Pneumonia," by Dr. S. H. Ward. The doctor reported thirty cases in one outbreak, of which number eight died. Autopsies were held and specimens sent to Dr. Westbrook, of the bacteriological laboratory, who confirmed the diagnosis. Dr. Ward's paper was quite lengthy and brought out a lively discussion. Dr. Peters read his paper on "Verminous Aneurism of the Mesenteric Artery the Starting-point of a Fatal Septicæmia." This paper was original, and proved Dr. Peters to be a student along the bacteriological line.

Dr. L. Hay next read his paper on "Eserine: Its Uses and Abuses." This paper brought out a spirited discussion on the uses of eserine and on colics in general.

Dr. Lyford read a paper on "Bursal Enlargements," exhibiting photographs of cases before and after being operated upon. This was a paper which had been read before the American Veterinary Medical Association, and was presented before our Association at the request of quite a number of the members interested in Dr. Lyford's radical surgery.

On motion, this Association guaranteed a fund of $500 to help entertain the American Veterinary Medical Association, providing their next meeting should be held in Minneapolis.

On motion, the President was empowered to appoint a committee of as many as he deemed necessary to help in entertaining the American Association.

On motion, a Press Committee was created, consisting of three, to look after the press work of the Society. The following constitute the committee as appointed: Drs. M. H. Reynolds, S. H. Ward, and K. J. McKenzie.

At this juncture Dr. S. D. Brimhall read a communication from the clerk of a court located in New York regarding the qualifications of a Dr. Smead now lecturing with the "Minnesota State Farmers' Institute."

On motion, the following was added to our By-laws: Article X, Code of Ethics, as embodied in the By-laws of the American Veterinary Medical Association, embracing also that it shall be considered a breach of ethics for any member of this Association to reveal to anyone not a member of this Association particular or specific treatment practised by a member of this Association for the encouragement and help of each other.

At this juncture President Lyford appointed the following committees: Colleges, Dr. H. C. Peters; Infectious Diseases, Dr. J. G. Annand; Bacteriology, Dr. S. D. Brimhall; Surgery, Dr. L. Hay; Medicines, Dr. R. Price; Legislation, Dr. S. H. Ward, Dr. M. H. Reynolds, Dr. J. S. Butler; Finances, Dr. W. Amos; Resolutions, Dr. S. D. Brimhall, Dr. E. T. Frank, Dr. Richard Price; Press, Dr. M. H. Reynolds, Dr. S. H. Ward, Dr. K. J. McKenzie.

The next meeting of our State Association with the American Association was discussed quite freely. No formal action was taken, but the opinion was freely expressed that it would be desirable to hold a very short business meeting, probably on the Monday afternoon preceding the meeting of the American Veterinary Medical Association, adjourning the summer meeting from July 1st to September 1st accordingly.

Dr. Reynolds urged the members of the State Association to assist him in building up a veterinary museum that would be a credit to the State, urging particularly that material should be selected with a view of teaching value and not as mere curiosities, each donor to be given full credit on the descriptive label or placard. Dr. Reynolds also suggested the advisability of having the regular meetings reported, and thought this could be arranged for without great expense.

The following resolution in regard to Dr. Smead, veterinarian to the State Farmers' Institute Corps, was introduced by the Resolution Committee previously instructed to do so:

WHEREAS, One known as Dr. Clarence B. Smead is posing in the State as a qualified veterinarian, and is known as the "State Farmers' Institute Veterinarian;" and

WHEREAS, We learn from reliable sources that he is not a graduate of any regular recognized authorized veterinary college; therefore, be it

Resolved, That this Association protest against his appearing under the title of "Doctor of Veterinary Medicine," or any other title, or be recognized in any way which will carry the impression that he is a qualified veterinarian.

S. D. BRIMHALL,
E. T. FRANK,
RICHARD PRICE,
Committee.

The resolution was adopted and the Secretary instructed to present the same to the Board of Control of the State Farmers' Institute, and also to Superintendent Gregg, of Lynn, Minn.

Dr. Price presented in writing a motion to change the date of the annual meeting from the second Tuesday to the Thursday following the second Tuesday in January. The question arose as to the validity of this action, but it was decided to call for a vote upon Dr. Price's motion to change the date of the meeting, and the motion being duly seconded was carried unanimously—"motion to change the date of the annual meeting" to the Thursday following the second Tuesday in January.

K. J. McKenzie,
Secretary and Treasurer.

ALLEGHENY COUNTY VETERINARY MEDICAL ASSOCIATION.

This young Association held well-attended monthly meetings during the winter and accomplished much good committee work, especially in efforts to adopt and establish a scale of fees or charges for professional visits and surgical operations. It was claimed some parties were making a practice of dividing fees with coachmen, and others were charging less than customary in this locality.

Drs. Gearhart, Richards, Spindler, and Waugh were appointed a Committee on Resolutions on the death of the late Dr. R. S. Huidekoper.

Drs. Boyd and Spindler presented excellent papers and reported interesting cases in practice.

Dr. A. Leteve, of Magee Pathological Institute, Mercy Hospital, delivered a very interesting and instructive lecture on the latest facts relating to tetanus, including serum therapy combinations, giving favorable results. Drs. McNeil, Meyer, and Waugh indulged in general discussion, and Dr. Leteve kindly answered many inquiries.

James A. Waugh, V. S.,
Secretary.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting was held in their room, northeast corner of Broad and Filbert Streets, March 11, 1902, with the President, Dr. Rhoads, in the chair. Owing to the absence of the regular Secretary, Dr. Ranck, Dr. Hoskins was appointed Secretary pro tem.

On roll call the following members were found present: Drs. Rhoads, Lintz, Felton, Hoskins, James T. McAnulty, and of the profession Dr. H. . Cox.

The reading of the minutes of the preceding meeting was on motion dispensed with.

Dr. Hoskins, as the Committee on Milk, reported and presented to the Association one of the blanks that the committee purposes sending to all of the institutions of a public or semi-public character in the city of Philadelphia.

Dr. H. B. Cox's (graduate of the American Veterinary College) application for membership was received, being vouched for by Drs. James T. McAnulty and W. Horace Hoskins, and referred to the Board of Trustees. To fill vacancies on the same the President appointed Drs. Lintz and McAnulty. The Board having reported favorably on the application, his election followed, and the President introduced him to the members present.

Dr. Charles M. Lintz then gave a lengthy dissertation on the trotting-bred horse. In his remarks he placed the breeding of many of the best horses in the land, pointing out the wonderful influence exercised by "Hambletonian Ten" in the transmission of speed to his offspring.

Dr. Lintz was interrogated by all the members present, but his knowledge of the great racing trotting horses enabled him to answer intelligently all the interrogatories.

The meeting adjourned at 11 o'clock.

W. HORACE HOSKINS,
Secretary pro tem.

NIAGARA AND ORLEANS COUNTY VETERINARY MEDICAL SOCIETY.

THE semi-annual meeting of the above Society was called to order at Medina, March 18th, by the President, Dr. W. E. Stocking, in a few well chosen remarks.

The Secretary, Dr. Crowforth, read the minutes of the annual meeting. The question of legislation was discussed at length, the Society being a unit in opposition to any bill that would cause the profession to recede to the laws of 1886, or anything that would detract from the present high standard of required veterinary education in this State. The veterinary and medical professions are working hand-in-hand in relation to the protection of public health, and both should be placed on the same educational footing. It was reported that a number of veterinarians residing in Canada on the border are continually practising in this State without being registered according to the State law. After a lengthy discussion the report was laid on the table until next meeting.

Dr. James Martin was elected to membership. He is the senior member of the Society.

Roll call found every graduate in the two counties present.

The subject of parturition was taken up, and each member entered into the discussion with far greater ease than could be displayed on a living subject. Dr. Hunter, of Niagara Falls, and Dr. Kesler, of Holly, were appointed essayists for the next meeting, at Lockport, in August, 1902.

ANDERSON CROWFORTH,
Secretary.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

THE annual meeting of the Society assembled in the Capitol Building, at Madison, at 2 o'clock P.M., March 5, 1902. The meeting was called to order by the President, Dr. C. E. Evans.

Roll call. Those present were Drs. W. G. Clark, B. L. Fossee, A. H. Harting, R. S. Heere, J. T. Hernsheim, L. N. Jargo, G. Ed. Leech, E. A. McCullough, A. J. Nelson, F. J. Roub, E. D. Roberts, D. Roberts, and S. S. Snyder.

Visitors present were Drs. Geo. E. Allen, Fort Atkinson; M. H. Reynolds and S. D. Brimhall, of Minneapolis, Minn.

The Secretary's report was read and accepted.

The Treasurer's report was read and accepted.

It was moved and seconded that the Chair appoint a committee to draw resolutions on the death of Dr. C. H. Ormond. Carried. The President appointed Drs. D. Roberts, Hernsheim, and Snyder.

The terms of Drs. Clute and Leech on Committee on Legislation having expired, it was decided that the Chair appoint members to fill vacancies.

The application for membership of Dr. A. H. Beckwith, of Shullsburg, Wis., was reported favorably, and on motion Dr. Beckwith was declared elected.

Dr. G. Ed. Leech having removed to Winona, Minn., requested an honorary membership. On motion the application was granted.

Dr. F. J. Roub read a report of poisoning by sinapis nigra, which was discussed by Dr. D. Roberts. Dr. Beattie reported a similar case.

On motion a vote of thanks was tendered the essayist.

On motion the Society proceeded to the election of officers.

Dr. F. J. Roub was nominated for President. There being no other nomination, the Secretary was instructed to cast the ballot for Dr. Roub for President. The ballot was cast and Dr. Roub declared elected.

Dr. R. S. Heere was nominated for Vice-President. There being no other nomination, the Secretary was instructed to cast the ballot for Dr. Heere. The ballot was cast and Dr. Heere declared elected.

Dr. W. G. Clark was nominated for Secretary, but declined. Dr. S. Beattie was then nominated. There being no other nomination, the Secretary was instructed to cast the ballot for Dr. Beattie. The ballot was cast and Dr. Beattie was declared elected.

Dr. S. S. Snyder was unanimously re-elected as Treasurer.

Drs. B. L. Clark, A. J. Nelson, and H. B. Clute were nominated for Board of Censors. There being no other nominations, the Secretary was instructed to cast the ballot for the above gentlemen. The ballot was cast and they were declared elected.

On motion the Society adjourned to meet at 7.30 P.M.

W. G. CLARK,
Secretary.

7.30 P.M. The President appointed Dr. R. H. Harrison to fill vacancy of Dr. C. H. Ormond on Revisionary Committee, and Dr. S. Beattie to fill vacancy of Dr. G. Ed. Leech on Committee on Legislation.

On motion Dr. Ormond was placed on honorary member roll.

Dr. W. G. Clark read a paper by Dr. J. M. O'Reilley on the use of eserine in the treatment of colic in the horse.

On motion discussion closed until next meeting, as essayist was absent.

Drs. M. H. Reynolds and S. D. Brimhall, of Minneapolis, Minn., were present in behalf of the American Veterinary Medical Association, and addressed the meeting, extending invitations to attend that meeting, to be held at Minneapolis, Minn., September 2 to 4, 1902.

It was moved and seconded that the Secretary send each member of our Association an invitation to attend the American Veterinary Medical Association meeting. Carried.

The veterinary laws of Wisconsin were discussed by several members, and it was moved and seconded that the Board of Legislators frame a bill for a State Board, this bill to be presented at our next meeting. Carried.

It was moved and seconded that a committee, consisting of Drs. Clute, D. Roberts, and Harrison, be appointed to furnish clinical material for our next meeting at Milwaukee. Carried.

Resolutions on the death of C. H. Ormond, of Milwaukee, were read as follows:

Whereas, It has pleased the Almighty to remove from our midst our esteemed member, Charles H. Ormond; and,

Whereas, The intimate relation and business intercourse with him have been most pleasant, make it befitting that we publicly record our appreciation of him; therefore, be it

Resolved, That in the loss of C. H. Ormond we lose a friend and valued member of our Association and profession; therefore, be it

Resolved, That the deep sympathy of this Association be extended to his relatives and friends; and be it further

Resolved, That a copy of these resolutions be forwarded to his relatives, spread upon our records, and published in the veterinary journals.

On motion the Society adjourned, to meet at Milwaukee subject to the call of the President and Secretary.

S. BEATTIE,
Secretary.

PERSONALS.

Prof. Leonard Pearson, Dean of the Veterinary Department, University of Pennsylvania, entertained Captain Kendall, of the Veterinary Department of the English army, located at Melbourne, Australia, at dinner at the University Club of Philadelphia and afterward at a theatre party, in February.

Dr. F. A. Wall, M.R.C.V.S., formerly of Pittsburg, Pa., is in the artillery service of the British army in South Africa. He has been confined to the hospital of the army nursing a serious injury received from the kick of a horse.

Dr. E. D. Barnsdale, of Jackson, Mich., is fond of speedy and well-bred horses. Besides being the owner of the well-bred stallion "Young Wayne," he is also the possessor of a fast pacer.

Dr. T. E. Gore, formerly of Buffalo, N. Y., and a former assistant of Dr. John Wende, is now a resident of Clarksburg, W. Va., where he conducts a livery stable in connection with his practice.

Dr. Leon H. Reefer, of Wheeling, W. Va., was the victim of a rabid dog bite in December, and spent some weeks in New York undergoing the Pasteur treatment, from all of which we are glad to report his complete recovery.

VETERINARY REGISTER.

[See Editorial, Journal of Comparative Medicine and Veterinary Archives, July, 1901, page 438.]

[In the following list the names and data printed without comment are those furnished to us by postal card with the signature of the individual.

Those with an asterisk [*] are those to whom we have sent, by United States mail, an envelope with prepaid postage and a request for return if not delivered in ten days; as the envelopes have not been returned, we presume that the letter has been delivered, that the individual in question exists, but that he has neglected to return the enclosed postal card with the information requested.—Ed. Journal.]

PENNSYLVANIA.

(Continued from page 200.)

Name	*Street.*	*Town.*	*College, Graduated.*	*County, Registered.*
Seitz, Elmer F.	......	Glen Rock	National Vet., 1896	York, 1896
Seitz, Jacob H.	......	Manor Station	*	......
Seitzell, Samuel	......	Jersey Shore	*	......
Seitzinger, Wm. H.	......	Wernersville	*	......
Seltzer, David E.	......	Wellsville	*	......
Seltzer, P. Harvey	12½ S. 7th st	Lebanon	American Vet. 1885	Lebanon
Senseman, B. F.	1523 N. 55th st	Philadelphia	*	......
Sensenich, F. W.	......	New Holland	*	Lancaster, 1889
Shaffer, John H.	......	Mt. Aetna	*	......
Shanabrook, Jno. J.	......	Blair Station	*	......
Shanor, Jos.,	......	Rochester	*	......
Shaub, Aaron E.	......	Lampeter Twp.	*	......
Shaub, E. K.	Duke & Vine	Lancaster	American Vet., 1890	Lancaster, Chester, 1890
Shaub, J. K.	......	New Holland	*	......
Shaub, Jno. C.	Duke & Vine	Lancaster	*	......
Sheffer, John A.	......	Codorus Twp.	*	......
Sheffer, John S.	......	Dover Twp.	*	......
Sheppard, C. W.	637 Court st	Reading	*	......
Sherrick, F. N.	211 E. Apple st	Connellsville	Ontario Vet., 1888	Fayette, 1889
Sherrick, Harry R.	211 E. Apple st	Connellsville	Ontario Vet., 1889	Fayette, 1890
Shields, Wm. A. H.	Ashland Hotel 7th & Race sts	Philadelphia	V. D. Univ. Pa., 1898	Philadelphia
Shiffert, John	......	Chambersb'g	*	......
Shimer, Allen S.	N. Main st	Bangor	Ontario Vet., 1883	Chester, Lehigh, Northamp., 1891
Shimer, W. S.	12 Calvert Blk.	Altoona	*	......
Shimp, Geo. E.	......	Ephrata	*	......
Shink, Abel	......	Richfield	*	......
Shipley, P. H.	......	Montgomery Twp.	*	......
Shoemaker, Harry C.	1713 N. 12th st	Philadelphia	*	......
Short, Enoch	......	Patton	*	......
Shue, Franklin F.	......	Yorkaua	......	York, 1895
Shugar, H. B.	......	Lebanon	*	......
Shults, Zebulon	305 Railroad st	Bloomsburg	*	......
Sieber, Cyrus	......	Mifflintown	*	......
Sill, J. E.	......	Union City	*	......
Simmons, J. W.	......	Silver Spring Twp.	*	......
Simpson, N. C.	......	Mahoning Twp.	*	......
Single, John L	......	Silver Spring Twp.	*	......
Single, Joseph	......	Silver Spring Twp.	*	......
Sitterly, C. M.	......	Scranton	*	......
Sitterly, J. R.	......	Scranton	*	......

Name.	*Street.*	*Town.*	*College, Graduated.*	*County, Registered.*
Slaughter, Wm. T.	......	Bristol	*	......
Sloan, Andrew J.	......	Dicksonburg	*	......
Sloan, James M.	Main st	Jamestown	Ontario Vet., 1887	Mercer, 1889
Sloan, L. D.	......	Conneautville	*	......
Slotzfur, Amos E.	......	S. Hermitage	*	......
Smith, Aloy	......	Mt. Carmel	*	......
Smith, Frank J.	......	Bedford	*	......
Smith, Frank L.	2150 Mervine st	Philadelphia	V. D. Univ. Pa., 1890	Philadelphia, 1890
Smith, James B.	......	Curwensville	*	......
Smith, John B.	......	Henrietta	*	......
Smith, John D.	......	Dallastown	*	......
Smith, Jos.,	......	W. Hanover Twp.	*	......
Smith, Jos. H.	......	Waltersburg	*	......
Smith, J. M.	......	Leatherwood	*	......
Smith, Morris	......	Wellsboro	*	......
Smith, S. H.	......	Piney	*	......
Smith, T. C.	......	Oxford Twp.	*	......
Snyder, David S.	......	Balm	*	......
Snyder, E.	......	Orwigsburg	*	......
Snyder, J. G.	208 E. 2d st	Oil City	*	......
Snyder, John	......	Advance	*	......
Snyder, Noah S.	......	Colmar	*	......
Snyder, O. M.	......	Lehighton	*	......
Snyder, Peter	......	Berlin	*	......
Snyder, S. D.	......	Balm	*	......
Sollenberger, John	......	Dillsburg	*	......
Sonash, John	......	Claridge	*	......
Sowers, John B.	......	Chambersb'g	*	......
Spangler, W. H.	......	Rossville	*	......
Speck, A. Harvey	......	Annville	American Vet., 1887	Lebanon, 1889
Speck, John A.	......	Sherman's Dale	*	......
Spencer, J. J.	......	Millerton	*	......
Spengler, Jared	......	Scullhill	*	......
Spicer, Chas. A.	1323 Federal st	Allegheny	Ontario Vet., 1889	Allegheny, Washington, 1890
Spindler, J. Ernest	702 Duquesne Way	Pittsburg	V. D. Univ. Pa., 1898	Allegheny, 1901
Spohn, John	......	Homestead	*	......
Stage, Albert F.	......	Morris	*	......
Stambaugh, John	......	Codorus Twp.	*	......
Stambaugh, Nathan	Baltimore st	Hanover	......	York, 1889
Stamp, Wm. G.	......	Mortonville	*	......
Standen, Frank	1220 Locust st	Philadelphia	......	Philadelphia, 1889
Stanton, David C.	......	Factoryville	......	Wyoming, 1889
Stark, G. W.	......	East Lemon	*	......
Stark, T. R.	......	Mill City	*	......
Stauffer, W. B.	1309 N. 28th st	Philadelphia	*	......
St. Clair, J. H.	762 South st	Indiana	......	Indiana, 1890
Stecker, John J.	......	Brodheads'le	*	......
Steffy, Henry B.	......	E. Coralico	*	......
Stein, Howard L.	......	Friedensburg Oley P. O.	Ontario Vet., 1893	Berks, 1894

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THE JOURNAL

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PROTARGOL IN VETERINARY SURGERY.

BY W. E. A. WYMAN, V.S.,
PORTLAND, MICH.

IT is almost one year since the liberality of the Farbenfabriken of Elberfield Co., 40 Stone Street, New York city, began to place a practically unlimited supply of protargol at the disposition of the writer. The method of employment was either the pure powder, watery solution, bougie with cocoa butter, and finally ointment with lanolin. Dr. Eichengruen, the discoverer of protargol, in 1897 said: "We possess in it a preparation which contains silver, not only in a masked form, but also in organic combination—that is, instead of a salt or double salt, in firm combination with a proteid. This product, which is readily soluble in water, is not precipitated by alkaline sulphates, albumin, sodium chloride, or acids, and has a completely neutral reaction."

No other silver salt has such properties; for these reasons it ought to act deeply without irritating materially the tissues, and containing 8.3 of silver its extraordinary bactericidal properties are explained. Not being precipitated by the saline and albuminous constituents of wound secretions, its bactericidal action is not impaired, but active at all times.

Protargol is plainly a desiccant, holds granulations in check, and produces rapidly a firm scar, being distinctly superior to iodoform, lead, aluminum acetate, tannoform, aristol as a cicatrizant. It is of great value in infected wounds, especially those with a purulent infiltration of the surrounding tissues; in these its deeply penetrating qualities are beautifully demonstrated.

In the treatment of tubular ulcers or fistulæ it is almost a specific. In catarrhal and ulcerative affections of the ear it is easily the promptest agent of to-day, while its extraordinary cicatrizing action is demonstrated by the application of a 10 per cent. lanolin ointment to that often troublesome and frequent eczematous dermatitis of the heels vulgarly termed scratches.

Internally the writer has employed protargol twice in gastro-intestinal affections, and, as the perusal of the subsequent reports will show, with excellent results.

The following cases all refer to the horse unless otherwise stated:

1. *Glossitis*, cause unknown. Intraparenchymatous injections with 5 per cent. protargol solution, given once daily two days in succession; one abscess was opened on the fourth day. Complete recovery on the seventh day.

2. *Osteomyelitis*, region of interdental space lower maxilla, with perforation at inferior border, necrotic bone smell, caused by pressure of curb-bit. Curettement of fistulous tract, with daily injections of 20 per cent. protargol solution. Complete recovery on the tenth day. Fourteen such cases have been treated with protargol injections. Pain decreased invariably on the third to fourth day following the first injection.

3. *Empyema of frontal and maxillary sinus*, due to alveolar periostitis of fourth upper molar. All cases of several months' standing. Extraction of tooth and trephining of frontal and maxillary sinus. Irrigations of sinuses three times daily with 5 per cent. protargol solution. Discharge stopped on an average, after irrigating the sinuses, sixteen days.

Four such cases were treated with protargol. One of these had been treated by a number of gentlemen for about two years, but continued to exhibit a nasal discharge. In this case frontal and nasal sinuses were trephined, and since no neoformations of any sort became manifest after trephining the cavities, 10 per cent. protargol irrigations were ordered three times daily. At the end of one week the discharge had greatly diminished in quantity, and its purulent nature had been changed into a mucoid type. The second week 20 per cent. irrigations twice daily were ordered; at the end of the third week the animal was discharged as cured. Three months later the owner reported him as free from nasal discharge.

4. *Otitis externa*. The chronic form, commonly and improperly called canker of the ear, has always been a more or less troublesome ailment to the canine practitioner, especially those with profuse suppuration and great pain. The results obtained with protargol are

simply marvellous. First cleanse the ear-duct with a warm alkaline solution, the writer giving bicarbonate of soda the preference. This is followed with an injection of alcohol, and after the parts are dry a 20 per cent. protargol solution is slowly injected into the ear duct three times daily. Some very sensitive animals will at this moment shake the head violently and possibly cry out, but the itching and pain subside almost at once. All cases treated so far, even those with excoriations and excessive granulations, made a prompt recovery under the protargol injections. The time consumed was from three days to one month. Among the forty-two cases of external otitis which recovered was one water spaniel that suffered with it for two years, and was shown the writer as a curiosity on account of the unbearable smell from his ears. The ear-ducts of this creature were filled with granulations and numerous ulcerations; after thorough curettement protargol did the rest.

5. *Poll-evil*, 5 cases. The third one only is worthy of special description. It had been operated at various places for the past three years; occasionally healed up, to break out anew in a few weeks. Examination showed necrosis of the ligamentum nuchæ, necrosis of the superior spinous process of the axis, also intermuscular phlegmon along the superior third of the neck. The treatment consisted of free and deep incisions along the fistulous tracts, cutting of the funicular portion of the ligamentum nuchæ, scraping away of all necrotic bone, insertion of setons wherever necessary to insure perfect drainage, and thrice daily irrigations with ½ per cent. formalin solution, followed by an injection of protargol 10 per cent., aquæ 40 per cent., glycerini 50 per cent. The animal was returned in three weeks and the setons removed. Seven months later the animal was seen again, the wounds having closed entirely six weeks from the day of operation. The time consumed in the protargol treatment of the other cases varied from fourteen days to five weeks.

6. *Fistula over the sternum.* The animal was bought with the fistula. Owner objected to radical operation, and was given the same protargol solution as subject 5, and was ordered to inject it three times daily. Fourteen days later he came for another supply, and finally reported the fistulous tract closed at the end of the fourth week.

7. *Fistulous withers.* Of these, eleven have been treated. Observations made show the absolute necessity of perfect drainage and removal of necrosed bone and aponeuroses with the knife. Protargol, while undoubtedly the best agent of to-day for the treatment of fistulous tracts, is no substitute for the knife. In all cases of this

sort where main reliance was placed upon protargol only, signal failure resulted; while the combination of the knife, proper drainage, and protargol gave results vastly superior to the simple application of knife and drainage, or injections of bichloride of mercury, liq. villati, argenti nitrat, etc.

It certainly would be unreasonable to expect protargol to replace recognized surgical necessities, known to be the conditio sine qua non in the treatment of fistulæ. Under its influence the purulent infiltration of the tissues and its pain disappear rapidly, sluggish granulations are changed into healthy ones, secretions are diminished, excessive cell proliferation is checked, and thus cicatrization encouraged.

8. *Balanitis.* Eleven cases treated. This trouble is commonly met with in dogs, and was readily healed by 10 per cent. injections three to four times a week. As a rule, but few injections were necessary to reduce the affection to a slight catarrhal state.

9. *Fistula of the spermatic cord.* Seven cases. In all instances protargol injections promptly reduced the phlegmonous state. Twice the fistula closed, to remain so for about two months. Finally amputation of the cord with the écraseur was instituted.

10. *Parenchymatous mastitis.* Thirteen cases, all cows. Beside saline purges, hot fomentations, frequent milking, injections of a 2 per cent. protargol solution was ordered every two hours. Complete recovery on an average in five days. Microscopical examination revealed no pus in the milk at the fifth day of the injection.

11. *Purulent parenchymatous mastitis.* Six months ago the writer was consulted in regard to a dairy herd where all the cows within one week had swollen udders. The affection set in suddenly, the udder hard and very painful, the animals lame more or less, and the skin covering the udder very red. Lactation practically suspended. The milk appears coagulated, containing red blood cells and pus corpuscles. In the older cases the secretion is practically all pus, while coagula obstruct the lacteal ducts. Cessation of appetite and rumination; temperature, 104° to 107° F. The microscopical examination revealed red and white blood cells in great numbers; pus cells and colostrum corpuscles. Based upon this ensemble, the diagnosis of mastitis parenchymatosa apostematosa was made.

Outside of general and local disinfection, isolation of the diseased ones, keeping a separate attendant for these, the main therapeutic agent was a 5 per cent. protargol solution injected every two or three hours into the teats, with subsequent massage. The results were excellent; the pain and swelling subsided, and in almost all cases was gone on the fifth and sixth day. Of course, an additional abscess was lanced. One cow went dry entirely, while another lost the use of one-quarter.

12. *Fistula of the tail.* Animal used to clamp the reins. To do away with this vice, myotomy of the coccygeal depressors was performed; ten days later an abscess formed above the point of incision. This was opened by the surgeon, who performed the myotomy, and the owner informed to pay no attention to it, as the wound would now close. Three weeks after the abscess had been opened the writer saw the animal the first time, receiving the above history. Since the owner seriously objected to any more cutting, he was given a 20 per cent. protargol water-glycerin preparation and told to inject it three times daily. After injecting the material for one week the bottle was broken, the fistula closed, and remained so since (three months).

13. *Dermatitis eczematosa, commonly termed scratches.* The mere fact that almost every horse owner has a "sure cure" for scratches, and at the same time always is on the lookout for something more reliable, is suggestive of the fact that some safe preparation is desirable. The writer has treated any number of this form of dermatitis, with excellent results, by means of a 10 to 20 per cent. protargol-lanolin ointment. After the scurf has been removed by hot fomentations or otherwise, the protargol-lanolin ointment is spread upon some cotton or linen cloth and placed upon the diseased skin and held in place by a bandage, to be removed and renewed once daily. Depending upon the amount of tissue destroyed, four to fourteen days are required to heal this condition. The best results are necessarily obtained when the animal can be kept at rest. The same treatment is equally efficient in gangrenous dermatitis after the necrosed piece has been separated. Protargol in ointment form gave better results than keeping the parts moist with a protargol solution, or dusting them with the pure powder. Only in those cases where excessive granulations threaten, the application of the powder is preferable, as the pressure exerted upon the granulations by the hard crust formed by the protargol greatly helps to form a nice clean scar. Fistulous tracts so often accompanying gangrenous dermatitis heal readily with 10 per cent. protargol injections made three times daily.

14. *Chronic grease, dermatitis chronica verrucosa,* protargol gave only negative results in nine cases.

(To be continued.)

THE WEIGHT OF THE KIDNEYS OF THE HORSE.

By J. T. Duncan, M.D., V.S.,
PROFESSOR OF ANATOMY, ONTARIO VETERINARY COLLEGE, TORONTO, CANADA.

For a number of years we have made it a rule at the Ontario Veterinary College to keep a record of the principal points of interest in regard to each subject dissected. Among the points noted are the weight of certain organs. These are weighed by the students who are on the subject, entered by the secretary of the class on forms provided for the purpose, verified by the demonstrator of anatomy, and returned to the college after the session has closed.

A study of these records often brings out interesting points. For instance, in looking over the columns showing the weight of the kidneys, it was noticed—

1. That these organs vary in weight more than is usually stated.
2. That this variation may be strikingly shown in the right and left kidney of the same animal.
3. That the left is not infrequently heavier than the right.
4. That a given series of cases may show that the left approximates closely to the right in weight.

The number of horses dissected during the past session (excluding cases of disease) was 54. Out of these 54 cases tabulated, the heaviest kidney was found to have weighed forty ounces, the lightest but sixteen ounces, thus showing very considerable variation—for it would take two and one-half of the smaller organ to make the larger.

In reference to the second point—the differing weight of the right and left kidney—the list shows it well. Perhaps the most striking case is one in which the right weighed forty ounces, the left but twenty-five ounces.

The third point is illustrated by the fact that in one case the left kidney weighed thirty-eight ounces, the right but twenty-five ounces; or, a difference of thirteen ounces in favor of the left.

It is, however, when we come to the average weights that the most interesting point is brought out. Chauveau, in his work on *Comparative Anatomy*, says "the right kidney (of the horse) is always more voluminous and heavy than the left, its average weight being twenty-seven ounces, while that of the left is twenty-five ounces." Other authorities, while not finding the organs so heavy as does Chauveau (Bradley's weights are: right kidney, twenty-one ounces;

left, nineteen ounces), agree that the right is about two ounces heavier than the left. In a series of cases published some years ago, our results were (from memory): right, twenty-three and a half ounces; left, twenty-one and a half ounces. All the more remarkable, these are the results from the present series, the average weight being for the right, $23\frac{29}{54}$ ounces; for the left, $23\frac{17}{54}$ ounces; or, approximately, right, $23\frac{1}{2}$ ounces; left, $23\frac{1}{3}$ ounces.

These results are surprising, but are obtained from—comparatively—so small a number of cases that they but point to the need for further examination.

In man, the right and left kidneys each average four and a half ounces.

CALCULI.[1]

By J. F. Butterfield, V.S.,
SOUTH MONTROSE, PA.

Calculi are concretions which may form in every part of the animal body, but are most frequently found in the organs that act as reservoirs, and in the excretory canals. They are met with in the joints, biliary ducts, digestive passages, lachrymal, mammæ, pancreas, pineal gland, prostate, lungs, salivary, spermatic, and urinary passages. The causes which give rise to them are obscure.

Those which occur in reservoirs or ducts are supposed to be owing to the deposition of the substances which compose them from the fluid as it passes along the duct; and those which occur in the substances of an organ are regarded as the product of some nutritive irritation.

Their general effect is to irritate as extraneous bodies the parts with which they are in contact, and to produce retention of the fluid whence they have been formed.

The symptoms differ, according to the sensibility of the organ and the importance of the particular secretion whose discharge they impede.

Their solution is generally impracticable. Spontaneous expulsion or extraction by surgical aid is the only way of getting rid of them.

Arthritic calculi concretions form in joints. Similar calculi are found in the ligaments and other parts. They sometimes cause rheumatic lameness and excessive pain. They are composed of uric acid, soda, and animal matter.

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[1] Presented at the annual meeting of the Pennsylvania State Veterinary Medical Association, March 4 and 5, 1902.

Biliary calculi are most frequently found in the gall-bladder (in those animals which have one); in others, in the substance of the liver or in the branches of the ductus hepaticus. The causes of biliary calculi are also very obscure. They are usually composed of cholesterine and the yellow matter of the bile.

They may occasion violent abdominal pain. In our patients we would be unable to make a correct diagnosis. Abscesses, biliary fistulæ, and fatal effusions into the peritoneal cavity may follow.

Calculi lachrymal sometimes, but rarely, form in the lachrymal passages. They may occasion abscesses and fistulæ.

Calculi of the mammæ have been found in this organ, of a yellowish-white color, having the shape of the excretory duct. They are liable to cause abscesses, and may be removed through the abscess.

Calculi of the pancreas. These are but little known. They are supposed to resemble the salivary.

Calculi of the pineal gland. No phenomena announce their presence during life. They are composed of the phosphate of lime.

Calculi preputial are composed of sabulous and exfoliated matter. They may occasion symptoms similar to urethral and vesical calculi. Have seen them in oxen as well as in the male equine. They should be removed with the oiled finger.

Calculi of the prostate are usually composed of uric acid. Symptoms common to those of calculi of the bladder are likely to develop.

Pulmonary calculi are usually formed of carbonate of lime and animal matter. They are sometimes met with in the dead body, by butchers, and in autopsies, without seeming to have produced unpleasant symptoms during life, or they may cause symptoms of phthisis; at other times they are expelled spasmodically.

Salivary calculi are concretions usually formed of phosphate and carbonate of lime. They are developed in the substance of the salivary glands or in their excretory ducts. In the first case they may be mistaken for a simple swelling of the gland, in the second they may generally be detected by the touch. They should be extracted by incision in the interior of the mouth. If taken from the outside it would occasion a fistula that it would be difficult to close. The writer removed this specimen (weight, four ounces) from a gray mare belonging to a Mr. Vail. It was situated in Steno's duct, near the entrance to the mouth. With a mouth speculum, to hold the mouth open, and a small scalpel I was enabled to remove it readily.

Calculi of the stomach and intestines: Gastric calculi could not be formed in the stomach itself on account of the acid reaction of its contents and because of the short time the alimentary matter remains there. (In ruminants it may be otherwise.)

The anti-peristaltic movements of the intestines bring them back to the stomach from the intestines. Calculi are ordinarily formed in the large intestines; colons, rarely in the cæcum. The causes which give rise to them are ingestion of hair during shedding, or feeding ripe hairy plants, as clover, millet, soja beans, etc.; also feed rich in magnesia and lime phosphates. Intestinal concretions vary in their composition. They are light, hard, and very fetid. While they do not obstruct the passage of the alimentary mass, they produce no unpleasant symptoms. At times they may be diagnosed by examination per rectum. The violent symptoms occasioned by them are frequent colics, of a periodic character, of a more rapid course than is due to accumulation of alimentary matter in the intestinal reservoirs. Treatment: in desperate cases laparotomy may be attempted. A case we diagnosed as intestinal concretion recovered after several months without treatment.

Urinary calculi are concretions which form from the crystallizable substances in the urine, and are met with in the whole course of the urinary passages. Their causes are but little known. They receive their name from the location in which they are found: as renal, calculi of the ureters, prostate, vesical, and urethral calculi.

Renal and calculi of the ureters occasion similar symptoms, and cause violent pain at times. Urethral and vesical calculi are the most common, and are more readily diagnosed, and may be extracted by surgical aid more successfully than most other forms of calculi.

Of the urethral calculi, the obstruction which they cause to the passing of the urine, the hard tumor, and the noise occasioned when struck by a sound or catheter indicates their presence. They are removed by forceps or incisions.

Of the vesical calculi, they sometimes proceed from the kidneys. Most commonly they are formed in the bladder itself.

Frequent attempts to pass urine, sudden stoppage to its flow, and bloody urine are the chief phenomena that induce a suspicion of their existence. We cannot, however, be certain of this without an examination per rectum.

There is no such thing, probably, as a medical solvent. A surgical operation is applicable.

I will report a case of vesical calculi that I had in my practice and our mode of operating for it, original with me.

On April 18, 1900, Master Winfred Liffany, of Harford, Susquehanna county, Pa., brought to my place a white pacing gelding, very handsome, about eight years old, and weight about 1000 pounds. He was dribbling urine slightly and attempted to urinate every few minutes. He was slightly run down in condition. Master Liffany had traded for him only a few days before. Upon rectal examination I found a vesical calculi the size of a large hen's egg. This was the first, and has been the only one I have found thus far.

The boy wanted to know if I could remove it successfully. I told him I thought I could, and he left the horse with me. I deferred the operation until April 30th. In the meantime I tried, both in New York and Philadelphia, to obtain lithotomy forceps from the veterinary-instrument dealers, but was unsuccessful. I had by this time decided upon my plan of operation. With the assistance of Dr. J. G. Wilson, M.D., and Druggist Sidney Jenks, of Montrose, and my man-of-all-work, we cast the horse with the "Conkey" harness, having previously dieted him with bran mashes for twenty-four hours. I then made an entrance to the pelvic region of the abdominal cavity, the same as we do in the operation for cryptorchids, as follows: with an ordinary castrating knife I made

an incision in the scrotum large enough to pass my hand. With my hand I broke down the connective tissue and fascia, and with a slight rotary movement I passed my hand right up into the inguinal region, and when I had reached about two inches above the ring I broke through the peritoneum, which brought me in the pelvic cavity near the bladder. I located the bladder at once, and seized it with the calculi and brought them out of the opening into view; held them while my assistant, Dr. Wilson, with suitable catgut, passed sutures in the muscular coat of the intending opening into the organ, leaving a loop above the point to cut through, being careful not to pass the needle through the mucous coat of the bladder.

With an ordinary scalpel we cut through the muscular portion under the loop of the catgut left for the purpose. We now shoved the muscles one side as far as we could, and cut through the mucous coat and removed the stone here shown; weight, five ounces. We now sutured the mucous coat with fine catgut, one-fourth inch apart, and drew up the sutures in the muscular portion and tied them. We now let the organ return to its normal position and allowed the horse to regain his feet. He manifested pain for a couple of hours and strained, passing a little blood.

The next morning I let him out to eat a little fresh grass and watched him for half an hour, when he urinated very naturally and did not strain at the close, as he had done when carrying the calculi. I let him out for a little exercise and to eat the fresh grass every day.

He improved rapidly. Passes a little pus at times. Sent him home, a distance of fourteen miles, May 14th, just two weeks after the operation. About four weeks from the time of the operation he strained and passed a little pus, but it lasted only two or three days, probably due to the sloughing of the sutures in the mucous coat of the bladder.

The horse was allowed to run at pasture for about three months. He gained in flesh and is in fine condition, and has been perfectly healthy since, doing all kinds of work. I see him frequently when in that vicinity.

Dr. Richard H. Powers was one of the successful candidates in the late examination for the United States Army, and is now veterinarian of the artillery corps about Fort Walla Walla, Washington.

ABORTION IN COWS.[1]

By Peter Malcolm, V.S.,
NEW HAMPTON, IOWA.

This question is one of great importance to the veterinarian as well as to the breeder of cattle. Abortion, using the general meaning of the term, is the expulsion of the fœtus before it is viable.

The common causes of abortion in cows are external injuries, such as one animal butting another, squeezing through narrow places, slipping and falling, kicks from vicious attendants—in fact, any injury to the abdomen may produce it. Causes of a more obscure nature are internal, such as an abnormal or diseased condition of the uterus; inflammation of the bowels, kidneys, bladder, or lungs; indigestion in the acute or chronic form; evolution of gas in the intestines sufficient to cause irritation to the uterus or interfere with its circulation; diarrhœa, whether caused by irritant food or the reckless use of purgatives. The presence of a calculus in the kidney, ureter, bladder, or urethra may cause a sympathetic disorder of the uterus and expulsion of its contents. Irritant poisons that act on the urinary and generative organs, such as cantharides, savin, tansy, ergot, smut, and various fungi that are found in decomposing vegetable matter. Another cause, and one of great importance, is bad ventilation, or any like condition which interferes with the normal oxidation of the blood. The importance of keeping pregnant animals in well-ventilated stables can be seen at a glance, when you take into consideration the condition of their blood, which contains an excess of water and a smaller proportion of albumin and red corpuscles. This condition aggravated by bad ventilation, decomposed animal and vegetable matter, poor food and stagnant water is almost sure to result in abortion.

The dam with all her diseases and the accidents that may be forced upon her is not the sole cause of abortion. To the sire a great deal of this trouble is due, and this should not be lost sight of, as he plays a prominent part in the transmission of disease. In the first place, it is not reasonable to suppose that a sire that is overworked can produce strong and vigorous spermatozoa. When this weakened spermatozoön comes into contact with the ovum, the chemical constituent will be of a debilitated character, which will, if it develops, ultimately cause disease of the fœtus or its envelops. Furthermore, this overworked sire is in a condition, on account of the weakened state of his generative organs, which furnish a favorable field for the development of vigorous microbes, which, when the act of copulation is performed, are carried into the vagina. Together with the spermatozoa these germs enter the uterus, and there develop, causing disease of the fœtus or its envelope, which may bring about abortion, or, if not, will produce disease of the offspring.

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

Another cause, and one of great importance, is infection. In some instances its origin is obscure, but the majority of outbreaks can be traced to neglected cases of simple or accidental abortion. In this form of abortion there is no longer a doubt as to the pathogenic agent, as science has proven beyond a doubt that it is due to a microörganism. Such conditions exist, and we are called upon to treat them. To do this successfully, it is necessary to understand the character and pathological action of this organism. It is a pathogenic microbe, developed in decomposing animal or vegetable matter. It enters the system by way of the respiratory or digestive tract, the vagina, or any abrasion of the skin. Gaining access to the blood, it causes putrefactive fermentation, which produces an irritation to the sympathetic system and death to the fœtus.

The treatment of this disease, or, more properly speaking, this deuteropathy, requires tact and energy, as the condition and circumstances that favor its progress are numerous and of an obscure nature. Overlooking a seemingly trivial condition may lead to serious consequences. An essential point to be considered in the preventive treatment is to see that the sire and dam are in a healthy condition before mating them. The sire should be kept away and not allowed to run with the cows, nor should he be allowed for at least three months or more to have intercourse with a cow that has aborted, and then should be allowed only one service. On no day should he serve more than three cows. The cow that has aborted should not be bred until after the period at which she would have given birth naturally, for in the majority of cases, if an aborting cow becomes impregnated she will abort when that period is reached.

In the treatment of a herd for abortion, do not wait to see if it is going to take on the epizoötic form, for delay is dangerous. One neglected case, no matter what the cause is, may cause abortion to every cow in the herd. Therefore, it is very essential to remove the cows that have aborted, thoroughly disinfect them, burn the placenta, destroy the fœtus and all other débris that may have become contaminated with the fluids, and disinfect the stable. For disinfection I would advise carbolic acid, as my experience has taught me to believe that carbolic acid is not only a specific in the destruction of this particular microbe, but that it arrests the fermentative changes that favor its development. In using carbolic acid in cases of this nature, two things should be noted: first, that the inhalation of the fumes is necessary, inasmuch as they arrest and destroy germs that may have gained access to the air-passages; second, that if used too freely it may cause an irritation to the respiratory organs sufficient to produce inflammation of the lungs. A safe formula, and one of sufficient strength, is one ounce of carbolic acid, one-half ounce of glycerin, and sixteen ounces of warm water, applied once a day for four or five days to the floor of the stable and to the rumps and tails of the cows. Internally, given in drinking water once a day for three or four days, about four drachms of hyposulphite of soda. Again, allow me to impress upon your mind that the microbes must gain access to the blood before they can do any harm. Also, that the injecting of the vagina is useless and that the irritation thus produced will cause abortion; and that the success in mastering this disease depends on the sanitary conditions.

DISCUSSION.

Dr. Scott asked Dr. Malcolm if he has by his method ever been able to arrest the disease when once well established in a herd. Dr. Malcolm said that in one herd of twenty cows nineteen aborted in one year. He treated the herd, and the owner got a new bull. The next year only a few aborted. In another herd of fifteen cows seven aborted in one year. He treated them, and, although three years have elapsed since, there have been no more abortions. He always has the stables disinfected when the cows are put in in the fall.

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The many friends of Dr. William H. Lowe, of Paterson, N. J., treasurer of the A. V. M. A., will regret to learn of his great loss by the fire holocaust in February that destroyed almost the entire business section of Paterson. Dr. Lowe's loss involved his hospital and all its contents, save his ambulance, which was afterward destroyed by the flood that succeeded the great fire.

CÆSAREAN SECTION.[1]

By H. L. Stewart, M.D.C.,
LACONA, IOWA.

Cæsarean section, or gastrohysterectomy, is an operation which has for its object the removal of the fœtus or fœtuses from the uterus of the parent when they cannot be removed in the natural way, and consists of making an opening through the abdominal wall and into the uterus for the purpose of such removal. This is quite a serious operation. It has been resorted to from a very early period in the human family, even in the days of Apollo and Julius Cæsar. Since these early times it has often been practised upon women. When it was first attempted in veterinary practice is not exactly known, but it is thought to have been practised by the Greek veterinarians at a very early date. Nothing definite is known of it until within the last century and a half, and it is not known to have been performed on the living animal until within less than a century. The operation is not frequently necessary on the mare and cow, and is less frequently successful on these animals; but on the smaller animals, especially swine, it is more successful, This is thought to be due to the attachment of the placenta to the uterus, which renders the animal less liable to septic infection through injury to the uterus. It is an operation which should be resorted to only in cases where the fœtus is alive and delivery by the natural passage is impossible or so difficult or dangerous that the mother incurs as much risk as she would from the operation; or where the owner prefers to save the offspring alive rather than incur the risk of losing both, the progeny being the more valuable; or when there are fractures or exostoses of the pelvis which greatly diminish the canal; or where there is protrusion of a large quantity of the bowels, as in one case which I had, and in which the foal was promptly removed and saved, although no effort was made to save the mare, or in extra-uterine pregnancy or torsion of the uterus. The operation is also indicated where the animal is near the termination of pregnancy and is too sick to live, or injured so that recovery is impossible, or if the animal has just died or is dying. The foal soon perishes when it cannot be born, but the calf may live for some time, varying from three minutes to a much longer time after the death of the mother. Puppies have been taken from the uterus alive eight or ten minutes after the death of the mother. Few cases are on record of successful gastrohysterectomy on cows and mares; but with the pig it is quite different. While the pig seems to be of little significance, and an animal that the veterinary practitioner is seldom called to see, yet in these days of high values, when a hog is often worth from $20 to $30 or more, it is deserving of our attention.

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

In all cases where the operation is decided upon no time should be lost in practising it if we wish to preserve the progeny and the mother. A clean and comfortable place should be selected. The animal should be placed on its right side and the left posterior limb fastened to something sufficient to hold it about level with the uppermost side of the patient. The hair should be clipped off over considerable space in the flank, or, better, clip the hair off before the animal is cast, if it can be done. The side should be well disinfected at the seat of the operation. A solution of creolin is perhaps the best. From the beginning use all measures to prevent septic metritis, peritonitis, or nervous exhaustion. With a scalpel make a liberal incision in the flank, as for ovariotomy, but make it longer. Twist all bleeding vessels, and then open the peritoneum; then, with the hand, reach in through the opening which has been made, and grasp one horn of the uterus and bring it with its contents through the incision to the outside, as it is impossible to prevent the escape of the liquor amnii and small particles of placenta into the abdominal cavity if the uterus is left in the abdomen while the contents are being removed. The incision into the uterus should be made, when practicable, between two pigs, so that they may both be removed through the same incision. More than two may be removed through one incision if it can be done without irritating the parts in trying to get the pigs to one opening. Rather than cause any unnecessary irritation of the uterus it is better to make an incision for each fœtus. After the fœtuses have been removed take all the membranes and fluids from the uterus; then close the incision in the uterus with an uninterrupted silk suture, so as to turn the edges in and bring the peritoneal coats together; then this horn should be replaced and the other horn grasped and brought to the outside in the same manner as the first. Should there be any fœtuses in the fundus of the uterus they should be gently pressed back into the horn of the uterus and removed in the same way as the others. The incision in the uterus should be closed by a continuous silk suture, care being taken to turn the edges in so as to bring the peritoneal surfaces together. The abdominal incision should be closed by passing a suture through the skin, muscle, and peritoneum. Little or no after-treatment is advisable. With this method of operating, in the summer of 1900 I had eight cases out of eleven to make speedy and successful recoveries. Three of these were operated upon for Mr. D. C. Rook, a Poland China breeder, of Oakley, by lantern light, and in twenty-five days were sold and shipped to Chicago. Last season out of ten cases seven made good recoveries. One was a case of extra-uterine pregnancy which made a good recovery and sold in a short time after the operation for about $25.

Discussion.

In answer to a question Dr. Stewart said that he gives an anæsthetic. He uses chloroform.

Dr. Heck has performed a number of Cæsarean sections upon sows, with a mortality of only 15 per cent. He uses chloroform as an anæsthetic. He utilizes interrupted silk sutures. He disinfects his silk by soaking a few days in formaldehyde solution, and then carries them in absolute alcohol.

Dr. Walrod said that he has done a number of these operations, and that he always induces chloroform anæsthesia. His objection is that the operation does not command a fee commensurate with the difficulty of the operation.

Dr. Stewart said that in one case he secured a fee of five dollars; that he has never driven over a mile to do the operation, and that he operates partly because he has a scientific interest in such cases. This interest was gratified in one case by finding a case of extra-uterine pregnancy—the only case he had ever seen in a domestic animal.

Dr. D. H. Miller said that he uses an anæsthetic, as he fears death from shock without its use.

EXTERNAL ULCERATIVE ANO-VULVITIS.[1]

By S. T. Miller, D.V.S.,
SHELBY, IOWA.

My attention was first called to this disease in the winter of 1897, while at Kansas City, when Dr. Steddom, with other inspectors of the Bureau of Animal Industry, was sent into Kansas to investigate a peculiar outbreak of disease among cows and heifers. On their return to Kansas City they reported a disease affecting the vulva of cows and heifers. From their report Dr. Sesco Stewart, of Kansas City, made a verbal report of the disease at a meeting of the Missouri Valley Veterinary Medical Association. The next article was that of Dr. C. Miller, of Ottumwa which appeared in the *American Veterinary Review* for April, 1901

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

My attention was next called to an outbreak in my brother-in-law's herd near Harlan, Iowa, in the winter of 1900. My brother Dr. D. H. Miller, was called to treat that outbreak. Drs. J. I. Gibson, John J. Repp, and S. H. Johnston also visited the herd. The next outbreak occurred in my own practice abou October 15, 1901. In the herd there were 23 head of cows and heifers and 4 steers. On first examination I found only two o three calves affected. In about three or four days I was surprised to find all except 1 old cow affected, including the 4 steers.

The next outbreak occurring in my own practice was abou November 23, 1901. There were on the farm about 35 head of cattle, including cows, heifers, steers, and calves. About half of the number were found to be affected, but there were no steers affected in this herd.

The next case was that of 26 head in a feed yard—22 steers and 4 cows—of which 4 cows and 8 steers were affected. Some of the steers were affected badly. On the same farm there were abou 25 head of pure-bred Shorthorn cattle and 50 grade stock cattle None outside the feed yard has shown any signs of the disease.

The first noticeable symptom was serous exudate rapidly forming into a brown scab, under which was very fetid pus, with extensive inflammation. The affection usually occurred on the lower portion of the lips of the vulva in heifers and cows, and in steers around the anus or roots of the tail. The scabs which formed seemed to spread rapidly, destroying more and more of the underlying tissue and forming a thicker and thicker scab. The scab if peeled off would expose a raw surface, which would bleed very readily. In a short time a new scab would be formed.

In the herds Nos. 1 and 3, I used for treatment a wash of a strong solution of mercury bichloride to cleanse the parts, after which I applied an ointment made up as follows: iodoform, 20 grains; oil of eucalyptus, 40 minims; carbolic acid, 20 minims; petrolatum enough to make 2 ounces.

This treatment affected a very speedy and permanent cure. The animals in herd No. 2 were never treated, but are slowly recovering.

DISCUSSION.

Dr. Repp described the gross and microscopical morbid anatomy of the disease. He said he had made some research in connection with Dr. Miller's outbreaks Nos. 1 and 2.

Dr. Brimhall, in answer to a question, said he had not met with the disease in Minnesota. He asked if anyone had made any observation as to whether or not the disease is contagious. Dr. S. T. Miller replied that he had witnessed a case in which a bull from a healthy herd had gained access to a herd in which the disease existed, served the cows there, and soon afterward served cows in the healthy herd, yet none of the healthy cows acquired the disease.

THE TRIALS OF THE VETERINARY EXAMINING BOARD.[1]

BY H. E. TALBOT, M.D.C.,
DES MOINES, IOWA.

I HAVE been making a few observations lately, and I have noticed that it makes little difference how many roses are thrown in your pathway, if you attempt to pick them up and pin them on your coat you are going to get scratched almost every time. The State Veterinary Examining Board has received its share of roses. We have individually and collectively been congratulated upon our appointment, and we have been complimented for the so-called masterly manner in which we have coped with numerous problems. We have at times come to the conclusion that we had the undivided support of the profession throughout the State, and just as we have resolved to gather together a few of these roses of compliment and bind them into a bouquet of self-congratulation, we have been rudely pricked by hidden thorns of censure or by the disapproval of those who, while condemning our course, have no remedy to offer with which to dress our wounds.

We have been forced to deal with problems which we little expected to encounter in the beginning. We have had no precedent to follow, and have found it necessary to establish precedents as we went along. We have met at times when our treasury was so depleted that we could not definitely set the date of the next meeting, and the overshadowing burden of our thoughts, in the language of Shakespeare, was "When shall we three meet again?"

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

When we first received our appointment and proudly donne the toga of office we were convinced that we had but one path t follow, and that was the one clearly mapped out for us by the la as passed. Since that time, however, we have discovered how seriously we were mistaken. We have had at least a dozen differen interpretations of every section of the law, and the queer part o the whole proceeding is that each interpreter expects us to agre with him. We have been flattered and threatened, cussed an discussed, and assured that we would make a grave mistake if w either granted or refused to grant a certain certificate. In short we have been made to feel that we were three of the most partial irresponsible, and generally incompetent men in the State of Iowa

Our work, however, has not been wholly without recompense At our meetings we have been delightfully entertained during ou moments of leisure by the rich soprano voice of our worthy President, aided by the deep bass voice of our genial Treasurer. O numerous occasions passers-by have been attracted by their masterl renditions of Dr. Heck's favorite, "The Bull-dog on the Ban and the Bull-frog in the Pool," or have stopped to listen to th silvery tones of Dr. Johnston as he led in "My Bonnie Jean." The doctor has always regretted that he didn't study music instea of veterinary medicine, and a number who have heard him sin have regretted it, too. As for myself, I never stop smoking lon enough to sing.

We have received a number of very interesting and somewha humorous letters. Among them was one from an old gentleman which ran thus: "I am the best horse-doctor in Allamakee Co Send me a certificate by return mail." Another gentleman, whe told that he was not eligible to registration, wrote and asked if $2 would get him a certificate. Of course, you do not expect us to rea our answer to him right out loud. Another gentleman admitte that he wasn't eligible, but assured us that if we didn't give hi a certificate any way he would expose us in some of our meanness Now, wasn't that mean? We didn't know what to say to hi either. In fact, it is hard to dispose of some of these knotty questions to an advantage and with profit to yourself.

We have been severely condemned in some quarters for acting upon the decision of Judge Holmes, of this district, and issuing certificates to those who were entitled to them at the time the law went into effect. A number have not yet heard of this decision and in one case proceedings were begun against a man who had been registered and held a certificate under this decision, but the matter was brought to our attention in time to save costs to both parties. As no doubt you are all aware, the decision referred to is to the effect that all non-graduates who were eligible to registration at the time the law went into effect are still eligible upon making the required application, accompanied by affidavits and fee.

All kinds of stories have been afloat regarding this decision—some to the effect that the law was unconstitutional and could not be enforced; and even registered men throughout the State have anxiously written, asking if these stories are true. The worst difficulty which we have encountered, however, has been with the cases of a number who were rejected before and make application again under this ruling. We have watched them, and I think we can safely say that practically none who has been registered under this ruling is incompetent or ineligible.

I have heard somewhere that brevity is the soul of wit, and, as I can readily believe that such a quality would be appreciated at this time, I will draw my paper to a close after reading a short contribution from the pen of the board stenographer. He has been in our employ for so long that he wants to register, but we have told him that treating an average of one case every two years is not sufficient, and that he would have to go to school. The following verses will be appreciated as an illustration of what the veterinarian gets in this world and what he may expect to get in the next:

He's a man who gets up early in the morning,
And the pleasures of good rest he'll never know.
He enjoys a midnight drive out in the country
When the mercury is forty-five below.
He exists because his neighbors want to use him,
He's the slave of all the country, you can bet;
He's the man you send for quick,
When your hoss is gettin' sick;
He's that easy-goin' feller called the "vet."

If you're figurin' on gettin' help for nothin',
He's the man you want to call on every time;
He can work as hard as any man a-livin',
But collectin' doesn't seem to be his line.
He's too busy to remember what you owe him,
And he's mighty glad to take what he can get,
He don't look for any pay
'Til along 'bout judgment day—
And he's seldom disappointed, is the "vet."

When accounts on earth have been marked off the ledger,
And we're all a-takin' chances in the sky,
When we're kinder blockin'up the golden stairway
'Til the angels have to crowd a-gettin' by;
I'll just bet St. Peter 'll come and tell us fellers
That he hasn' any vacant rooms to let,
That we'll have to turn aroun',
Take the elevator down
And go live out in the stable with the "vet."

ETIOLOGY OF LAMINITIS. Aruch, Director of the Roumania Tramways Omnibus Society, has most constantly observed laminiti in horses used for active emergency service, those in good conditio and fed strongly on nitrogenous food, those working after severa days' rest, and in colts well nourished during breaking. The diseas increased or decreased according to the good or poor condition o the animal.

Aruch experimented with the toxic coefficient of the urine in th healthy horse upon rabbits. This coefficient augmented with work but after rest became normal. This experimental horse was require to perform work producing much fatigue and was then rested fo two days. The urine during these two days had a high toxi power and, as Aruch prognosticated, the horse became affected wit founder. After feeding hay and grass, or grass alone, and disinfecting the intestinal tract, as the toxic coefficient become less so th symptoms improved, and when the animal was cured the toxi coefficient was normal.

From these phenomena the author concludes that laminitis is species of auto-intoxication from increased metabolic changes in system surcharged with nutritious material, as indicated by the increased toxic properties of the urine.

Conclusions: 1. Founder should be considered as the result of special auto-intoxication.

2. The augmentation of the toxic properties of the urine preced the appearance of the disease.

3. All remedies which stimulate the emunctories, liver, kidneys skin, etc., and especially a low diet and intestinal disinfection, ar indicated in the treatment of founder.—*Annals de Med. Vet.*

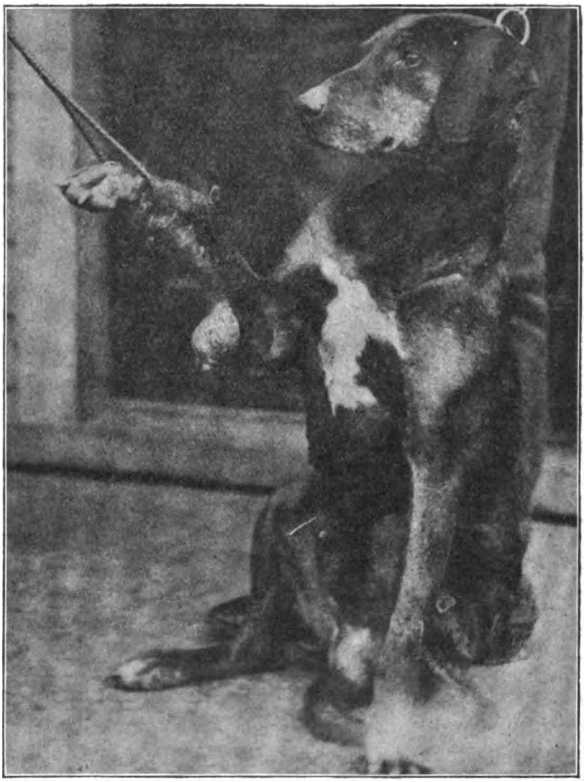
DEPARTMENT OF CANINE, FELINE, AND AVIAN MEDICINE AND SURGERY.

By Cecil French, D.V.S. (McGill and Munich),
WASHINGTON, D. C.

A Condition of Neoplasia Exhibiting Progressive Malignancy. Of late years pathologists have recognized the fact that certain forms of tumor which in the first instance exhibit innocent characteristics may later undergo progressive transformation into a condition of malignancy. This is particularly true of the class of epithelial or granular growths approximating to fully formed tissue, of which adenomata form a noteworthy example. It will be remembered that an adenoma is an innocent growth originating from pre-existing glandular tissue and formed by proliferated gland cells arranged in an orderly manner and supported by a fibrous stroma. But the cells differ from normal ones in that they have no power of producing the normal secretion peculiar to the gland tissue from which they grow. That is to say, if any secretion at all is produced, it is a modified one, and the gland has no means of discharging it externally by proper ducts. There are adenomas of the liver which clearly show bile pigmentation, and thyroid adenomas may lead sometimes to exophthalmic goitre, brought about by excessive production of excretion, which often disappears upon removal of the tumors. Tumors of the class under consideration show no tendency to infiltration of the neighboring lymphatics, but it is certain that they may undergo progressive transformation into true malignant carcinomatous structures. So long as the overgrowth of follicles tends to retain the glandular form it is termed an adenoma, but as soon as the overgrowth is characterized by infiltration and development of an embryonic type of cells it is termed a carcinoma.

One of the first veterinarians to observe this phenomenon was Leblanc, in the year 1858 (*Rec. de Med. Veter.*, p. 911). He made consecutive examinations of recurring mammary tumors, and observed a gradual transformation into malignancy. The first growth removed was found to be a simple adenoma, but malignant characteristics became more and more accentuated as the recurrence increased in frequency. In an instance recorded by M'Fadyean, a carcinoma appeared to have developed as a secondary growth from an anal adenoma. In another instance which I observed, a firm mammary tumor appeared in a female Skye terrier, at the age of eight years. After reaching a moderate size it remained quiescent for seven years, when it suddenly commenced to enlarge at an alarming rate, in addition to giving birth to numerous secondary growths in the neighboring glands. It proved on examination to be a carcinoma.

The case which forms the substance of this report is a very interesting one. The animal in question is a male mongrel hound, aged about eight years. For some years it has been secured by a chain, one end of which was attached to a ring which ran on a wire about forty feet long. In this manner the animal was enabled to run up and down within a limited area. On its right side, as it left its sleeping quarters, was a high wall, while on the other side, a short distance away, was its master's residence. Hence, on running up and down the length of the wire, it would invariably get on the side looking toward the house, and it so happened that the chain tended always to get between its front legs and rub continu-

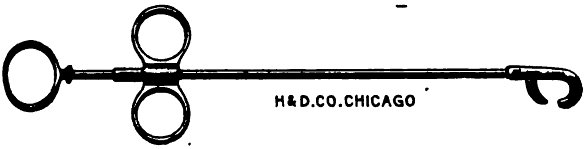


ously on a certain spot on the posterior and inner aspect of the right leg. About two years ago an abrasion was noticed on this spot, and this gradually gave place to a sessile fibrous growth which grew slowly for eighteen months. It then suddenly began to increase in size at a much more rapid rate, its weight causing it to become pediculate.

Recently I removed this growth and forwarded it to Professor Adami, of the McGill Pathological Laboratory, for histologic diagnosis. In his report, Professor Adami states that the main mass is fibromatous, but here and there included in it are certain little areas which, to the naked eye, look paler and yellower, and when squeezed give out a fatty substance. Under the microscope similar areas show these to be apparently sebaceous glands undergoing what, under careful examination, could not be regarded as otherwise than an early cancerous change. That is to say, that the masses of cells become more irregular and can be traced passing into the surrounding stroma. Therefore the diagnosis *is fibro-adenoma with early malignancy.*

This case also demonstrates once more what has been so often noticed, viz., that the final result of chronic irritation of a part may be a malignant neoplasm, and that it is always advisable to observe the rule of early and free removal of neoplasms whenever they are in accessible situations.

A NEW CANINE AND FELINE INSTRUMENT. The accompanying figure illustrates the model of an instrument which Haussmann & Dunn have constructed at my suggestion. It is termed an oöphorectome, and, as the name indicates, is intended for castrating the bitch. It works on the principle of the emasculator, but in the direction of the long axis of the shaft, and this feature, together with the smallness of the blades, which are just large enough to grasp the tissues at either extremity of the ovary after the broad ligament has been torn, enables the operator to sever the tissues at the proximal extremity with facility and to dispense with ligaturing.



The instrument is equally adapted to castration of the male cat.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

PULMONARY NODES IN THE LUNG SIMULATING GLANDERS IN A HORSE AFFECTED WITH SUMMER WOUNDS. Summer wounds contain firm, nodular granulations of a grayish color that can be easily enucleated from the sclerosed fibrous tissue into which the germ is transformed. The centre of these nodes consists of a caseous amorphous material that contains the larva of a nematode.

Nocard observed some of these nodular growths in the lungs of a horse affected with an old summer wound. They are composed of a very thick, fibrous capsule, in the interior of which exists a small, grayish mass, glistening on section, easily enucleated, and leaving a small, smooth cavity. The contents are firm, but do not show any calcareous infiltration, and can be easily differentiated from glanders tubercles. A microscopical examination revealed the presence of a nematode larva identical with that found in the cutaneous nodosities.—*Annal de Med. Vet.*

COCAINE-MORPHINE ANALGESIA. Arloing, in 1885, demonstrated that the physiological effects of cocaine are due to alterations of the physical properties of the nerve fibrils and their terminals. Morphine acts in the same manner, but its action is of longer duration. Pecus, therefore, combines these two alkaloids in order to intensify and prolong the anæsthesia for diagnostic purposes. He supplies cocaine in a 3 per cent. and morphine in a 4 per cent. solution.

A therapeutic value has been ascribed to such an injection, but this is scarcely admissible.—*Annal de Med. Vet.*

CLYSTERS OF HYDROGEN PEROXIDE. Rager has practised washing out of the intestines for a long time. The commercial preparation being slightly acid, the following solution is used: 100 c.c. of hydrogen peroxide in 900 c.c. boiled water, to which is added 5 grains sodium chloride, 3 grains sodium phosphate, and 5 grains sodium bicarbonate. This solution is slightly alkaline. The object is to wash out the large intestine. This treatment has given excellent results in dysenteriform and muco-membranous colitis, as well as in divers other intestinal affections. Rocaz has employed it very successfully in acute dysentery in infants. Since in the dog we meet analogous intestinal disorder, this local method of medication should be of advantage in canine practice.—*Presse Medicale.*

AVIAN DIPHTHERIA. Guérin, with many other observers, has been able to demonstrate that diphtheria in the fowl is caused by a microbe different from the bacillus of diphtheria of man. The former belongs to the pasteurella of Lignierès.

Guérin has experimented with vaccination against diphtheria in birds. Intra-peritoneal inoculation of cultures heated to divers degrees have given immunity to animals which have afterward resisted an inoculation with a virulent culture that was constantly fatal to control animals.

A preventive serum was also prepared. A horse which was injected repeatedly with virulent cultures furnished at the end of several months a serum capable of immunizing the pigeon, the most susceptible animal, against a virulent intra-peritoneal inoculation. The minimum dose of the serum was 4 c.c.; against a subcutaneous inoculation 2 c.c. sufficed. The immunizing effect of this serum can be prolonged by the intra-peritoneal injection of a culture twenty-four hours afterward—the same sero-vaccination as practised in erysipelas and cholera of the hog. The therapeutic value of the serum has been only very feeble.—*Annals de Med. Vet.*

CUTANEOUS LYMPHADENOMA IN A COW. Lienaux observed in a cow three years old and very cachectic, numerous tumors all over the cutaneous surface excepting at the inferior part of the members. The tumors were 4-5 cm. in diameter, flat, circular, slightly elevated, not hard, and somewhat elastic; this surface was smooth and deprived of hair, not ulcerated, and the epidermis normal, and over some of the tumors scaly without any inflammatory symptoms.

The nature of these tumors it would have been difficult to determine but for a tumefaction of the retropharyngeal, sublingual prescapular, precrural and supramammary lymphatic glands. This suggested the condition as being lymphadenoma, which was confirmed by a histological examination of the tumors, lymph glands, and the blood. The internal organs were normal.

Cutaneous lymphadenoma is common in man, but in veterinary pathology is exceedingly rare.—*Rec. de Med. Vet.*

THE CACODYLATES IN MALARIAL FEVER. The cacodylates, which are very effective in cachectic diseases, are not well tolerated by the digestive tract. According to the studies of Gautier, hypodermic injections of cocodylate of sodium—methylarsenate of sodium—is inoffensive to the stomach and is much more efficacious than quinine against malaria.

Repeated excesses of this disease, in spite of the administration of doses of quinine, were speedily relieved by this preparation in 5 cm. doses given hypodermically. The hematozoa which exist in abundance in the blood are rapidly destroyed by the mononuclear leucocytes. The latter are very much increased in number under the influence of this remedy.—*C. R. de l'Acad. des. Sciences.*

INSUFFLATION OF ATMOSPHERIC AIR FOR STRAINED TENDONS. Joly has employed the subcutaneous insufflation of atmospheric air to reduce inflammation of the tendons and their sheaths in strain of the perforans and perforatus.

The manner of operation is as follows: A Potain aspirator is used; the lateral needle is covered with several layers of iodoform gauze to filter the air, while the central needle is connected with an India-rubber tube whose end is provided with a sterilized hypodermic needle. The skin is disinfected with a rubber tourniquet applied to the forearm above the knee. The needle is inserted at the middle of the posterior region of the canon. The air is then pumped in and the subcutaneous tissue well filled, usually about six to eight syringefuls, and collodion applied over the puncture. The tourniquet is removed. The air which passes up into the forearm interferes but little with walking.

The results of the operation are regularly favorable. Every morning the air is massaged toward the diseased region. The crepitation disappears in from six to eight days, although the subcutaneous tissue remains emphysematous after the crepitation has disappeared. Besides the massage, cold water douches are employed.

About fifteen days after the operation the parts are almost normal and the inflammatory symptoms have generally disappeared and in three weeks after the application of the treatment the animal is ready to go to work.—*Rec. de Med. Vet.*

FRACTURE OF THE GLENOID FIBROCARTILAGE OF THE SECOND PHALANX. The articular surface of the second phalanx is supplemented at its supraposterior border by a thick transverse pad of fibrocartilage which on each side gives attachments to the two terminal branches of the perforatus tendon. This fibrocartilage forms a part of the apparatus of suspension of the fetlock, and in going down hill or stopping suddenly a great deal of traction is applied upon it by the perforatus. Hence, it is sometimes, though rarely, torn away from the bone. The symptoms, among them lowering of the fetlock and turning up of the toe, are similar to those of fracture of the second phalanx.

The cause must be attributed to some alteration in cartilage, the the result of the constant traction or of a constitutional predisposition.

The diagnosis is difficult and must be differentiated from fracture of the second phalanx by the swelling, the absence of lateral displacement and of crepitation.

The prognosis is unfavorable and under ordinary conditions the animal should be destroyed.—*Rec. de Med. Vet.*

TREATMENT OF FOOT-AND-MOUTH DISEASE. Jarré recommends in this disease the local application of a 33 per cent. solution of chemically pure chromic acid; also in other aphthous affections of the buccal mucous membranes. The solution is escharotic, destroys the sensibility, and enables the animal to masticate food. One dressing generally suffices; the fever subsides and the ulcers desiccate. Upon the feet the effect is analogous, although the dressing is repeated two or three times. In 1500 cases treated in France in this manner the ulcerations healed without any complications.—*Oesterr. Monatsch. für Thierheilk.*

PERONEAL AND TIBIAL NEURECTOMY IN SPAVIN. Bayer operated on 8 cases which previously had been unserviceable; all became serviceable, but 2 developed stringhalt. In 1, a trotter, the result was remarkable. Schimmel, Vogt, Nordheim, and Housen (7 cases) operated with good results.

Fröhner, from February 18, 1898, to August, 1899, operated upon 12 cases (oldest, one and a half years; most recent, three months), with favorable results. Of 8 cases previously treated there is no comment on 6, but in 2 the canon and the scaphoid bones became fractured eight and four months afterward, respectively. These accidents were due to trophic changes that follow neurectomies in general.—*Monatsch. für Präk. Thierheilk.*

OPERATIVE VARIATION IN ARYTENECTOMY.—After reviewing the work of various operators, Hendrickx gives to this operation an affirmative value. Observing that in some instances the roaring became more intense after than before the operation, he made a post-mortem examination of such a larynx, and found that the lumen of the upper end of the trachea was obstructed by the curling inward of the severed ends of the first two tracheal rings. To obviate this in operating, tracheotomy is performed before the larynx is incised in the usual manner, but not through the first two tracheal rings. The trachea is at once plugged with iodoform gauze or cotton which replaces the tampon canula. This plug and the tracheal tube are removed after twenty-four hours. (The translator has found this procedure satisfactory.)—*Annals de Med. Vet.*

SITUS TRANSVERSUS IN A BULL. Lohbeck, Chief Inspector at Abattoir of Cologne, reports an anomaly of this kind in a yearling bull—that the positions of the organs were reversed in relation to right and left. The aorta was on the right side of the median line; the right ventricle and right auricle were on the left side, and vice versa; the lungs were likewise transposed in their position.

The œsophagus was on the right side of the trachea. The abdominal visceræ were not examined, but it is believed that the "situs transversus" was complete. The animal was in a perfect state of health.—*Fl. u. Milchhyg.*

BARLEY AS A SUBSTITUTE FOR OATS IN THE HORSE'S RATION. Aruch and Lelli divided into two groups twenty-eight horses under similar conditions of age, weight, condition, and work. The first group was fed on barley. The second was the control group. Every horse was weighed twice daily. The experiment continued for forty-eight days and was divided in four periods of twelve days each; the last period was subdivided into two periods of six days each. Two kilos of barley were substituted for the same quantity of oats during each period until the substitution was complete. For each period the mean weight of each horse was determined, and at the end of the experiment the mean of the means was made.

Conclusions: The weight of these horses diminished as the barley was increased, but in very small proportion. Barley can be substituted, not only pound for pound, but completely without any bad effects upon the physical or dynamic conditions of the animal. This substitution has an economic value.—*Annals de Med. Vet.*

REPORTS OF CASES.

TETANUS.

By John J. Repp, V.M.D.
Ames, Iowa.

Case I.—Bay gelding, ten years old, 16 hands high, 1300 pounds weight, used for draying.

History. On Saturday, January 18, 1902, while at work the horse tread upon a tenpenny nail, which penetrated the left posterior foot about the middle of the lateral lacuna. The animal did not show lameness visible to the owner until the next morning, when the nail, which remained in the foot, was seen and removed. It had penetrated about an inch and then bent over, the upper portion of the nail lying in the lacuna. The animal was kept at his usual work until Thursday evening, January 23. On the evening of this day he ate his feed as usual. As a result of inquiry the owner could recall that on Thursday the horse did not work in his usual manner. Although high-spirited, he lagged a little, and his ears were not moved as much as usual. It is inferred from this that the horse was showing slight symptoms of tetanus at this time. On the morning of Friday, January 24, the horse did not eat, was excitable, held his head stiffly, and his jaws were set. This led the owner to suspect tetanus.

Personal Observations. I saw the animal first at 1 p.m., Friday, January 24. His jaws were firmly set; ropy saliva hanging from mouth; head extended; muscles of neck prominently defined; membrana nictitans slightly protruded; gait stiff; temperature, respiration, and pulse normal.

Treatment. The stabling was first class, so needed no attention. Feeding of gruel by the mouth was attempted by means of a funnel and hose, but had to be given up because the horse could not swallow. The medication consisted of one ounce of chloral dissolved in half-pint of acacia solution, per rectum, and five grains of morphine sulphate, subcutaneously three times daily. The nail wound was enlarged and pure creolin applied to it. Although the drugs brought about a slight temporary amelioration of the symptoms, the animal grew gradually worse until it died, on the night of Saturday, January 25. This case is interesting, as will be noticed, chiefly because of the short incubation period—five days—and the short course—about two days. The great power and rapid progress of the morbid process were very obvious.

CASE II.—Bay gelding, three years old, grade with some standard blood.

HISTORY. This colt had been castrated by a farmer about May 10, 1901. About June 1 the owner noticed some signs of illness, and finally (June 10) brought the animal to the Veterinary Hospital, Iowa State College, where it came under my care.

I examined the colt immediately after its arrival from a twelve-mile journey on foot. The colt was wild, as it had never been handled, and was very excitable. On approaching its head it would wheel around and try to get away. It was very stiff, head extended, tail raised, and the membrana nictitans drawn the greater part of the time almost completely over the eye. The owner said there was "something wrong with the horse's eyes" which he wished attended to. The castration wounds had healed. A diagnosis of tetanus was made and the owner given an unfavorable prognosis. He consented to leave it in the hospital for treatment.

TREATMENT. The colt could chew and swallow, so it got all it needed to eat, although it ate with much difficulty. The medicinal treatment instituted consisted of five grains of morphine sulphate twice a day subcutaneously and one ounce of chloral in acacia solution by the mouth. The drenching produced such great excitement, at one time causing the horse to fall to the floor, that it was abandoned after two or three attempts, and the chloral given per rectum. After about one week of treatment the chloral was discontinued, but the morphine injections were kept up until June 28. On this date the colt was considerably improved, though it still showed marked evidence of the disease. The owner now wished to remove the animal from the hospital to a nearby farm in order to diminish cost of keeping. This was done and medication discontinued. After a week's stay at this farm the colt was taken home almost entirely well. A letter from the owner, dated March 15, 1902, states that the animal made a complete recovery, and has since remained in good health. The marked features of this case seem to be chronicity of the attack, which was quite virulent in all its features except the lack of severe involvement of the organs of mastication and deglutition, and the large quantity of morphine which the animal received.

Dr. J. G. Bethune, of Punxsutawney, Pa., has one of the largest veterinary hospitals in Western Pennsylvania.

TREATMENT OF MALIGNANT ŒDEMA WITH CARBOLIC ACID, WITH REMARKS UPON "LEECHES" OR BURSATTEE.

By Charles F. Dawson, M.D., D.V.S.,
LAKE CITY, FLA.

The patient, a native three-year-old pony, was brought to me, suffering with a "leech" tumor, which involved the tissues, including bone, from hock to fetlock. The animal was cast and kept under chloroform for two hours by green students. During the operation of removal of the tumor we found it advisable to administer a stimulant, and dilute alcohol was injected into the costal region near the point of the elbow. The next day considerable tenderness was shown at the site of the injections. The next day a large crepitating tumor had formed. A diagnosis of malignant œdema was made.

We considered it highly important to save the animal's life in order to make a test of the curability of a "leech" tumor of six-months' growth. Therefore, any method which promised a cure of the malignant œdema was eagerly seized upon. I decided to inject strong carbolic acid into the tumor in one-drachm doses on three succeeding days. There was complete subsidence of the gas tumor. The animal's condition was pretty low, but I noticed no particular symptom which could be attributed to the carbolic acid. There was rapid death of the subcutaneous connective tissue for the space of twelve inches square, and the problem now confronting us was to get rid of the dead tissue. An operation for its mechanical removal was planned and abandoned. Poultices were applied instead, and in a day or two I was gratified to find liquefaction in progress.

The abscess, which pointed, was lanced, thus liberating considerable pus and allowing the mechanical removal of several large pieces of dead tissue. A seton-needle threaded with a drainage-tube was entered at the opening and passed downward to the lowest margin of the dead area and out through the skin. Liquefaction was aided by daily baths of warm water, and the wound was irrigated with 1 per cent. creolin. A tonic of quinine, iron, nux vomica, and alcohol was given regularly.

Although the animal seemed on many occasions to be dying, it made a good recovery in a month, and was returned to the owner. Barring a slight luxation of the fetlock-joint, from weakening of the extensor pedis tendon from the "leech" disease, the animal walked normally, although the leg had not skinned over, nor could a favorable prognosis as to the non-recurrence of the "leech" tumor be given.

As some practitioners may not have seen this disease, it may be well to state that "leeches" or bursattee is a common disease in Florida, which manifests itself in the formation of tumor-growths which have some of the characters of the actinomycotic tumors. Its structure is fibrous, and contains many sinuses, which discharge a bloody, honey-like fluid. It is a fatal, infectious disease, which has its origin in the skin, and finally penetrates all the tissues. Here and there in the tumor tissue yellow bodies with root-like projections may be found. These bodies are called "leeches" by the natives. They consist of the mycelia of the fungus which causes the disease. The only remedy is complete removal of the tumor and adjacent tissue at once. The application of caustics and disinfectants makes matters infinitely worse, as they stimulate the tissues to renewed growth-activity. In Florida the disease affects only the genus equus.

AMPUTATION OF A BULL'S PENIS.[1]

By George M. Walrod, V.S.,
STORM LAKE, IOWA.

On September 25, 1901, I was called to see a bull which the owner said had hurt his penis. On arriving I found the bull with his penis protruding about five or six inches, and split at the end for a distance of about one and one-half inches. On further examination I found the penis very much enlarged for about five or six inches inside the sheath, and gangrenous. My prognosis was that I might save the animal, but not the penis. The owner told me to do as I thought best, so I concluded to amputate the penis. I divided the sheath from the prepuce back to near the scrotum, and then divided the tissues of the penis until I came to the urethra, ligating the external and internal pudic arteries. I then dissected out one-half inch of the urethra and cut through it at right angles to its long axis, so as to leave the stub of the urethra about one-half inch longer than the remnant of the penis; then I divided the protruding part of the urethra into three equal parts, suturing each part to the corpus spongiosum. I then dissected the mucous lining from the sheath and excised a little of the sheath at the prepuce. I then sutured the skin incision which had been made in the sheath. Antiseptic precautions were, of course, taken throughout. An antiseptic wash was used for a few days after the operation, and this was followed by an ointment composed of iodoform and petrolatum, 1 to 8, applied to the rudimentary penis. The animal made a good recovery, without missing a feed. He was stall-fed for three months, at the end of which time he was quite fat, and was sold for beef.

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Iowa, February 11 and 12, 1902.

DISCUSSION.

Dr. George A. Scott moved that the discussions be limited to twenty minutes. Seconded, put to vote, and carried.

Dr. Heck asked if the members thought that amputation of the horse's penis could be done with the animal in the standing position. He said he was thinking of trying it, by the aid of cocaine locally, with the horse standing. None of the members had had experience with the horse standing, but those who expressed themselves thought it could not be done in that way, and that the animal should be cast.

RUPTURE OF THE FLEXOR TENDONS AS A COMPLICATION OF AZOTURIA.[1]

By Chas. W. Boyd, V.M.D.,
PITTSBURG, PA.

RUPTURE of the flexor tendons is usually of traumatic origin, and when we meet with such cases the direct cause is, in the majority of instances, known. However, we occasionally hear of cases which were not of traumatic cause, but as a sequel of some diseases which run a long course. I wish to submit to you a report of a case of rupture of the flexor tendons of both anterior limbs which has a peculiar history, and you may use your own judgment as to what the primary cause in this case was.

HISTORY. A fine carriage horse, nine years, weight about 1000 pounds, had been standing in the stable for about ten days without exercise of any kind; after he had been driven about five miles he fell on the street and was unable to rise. He was immediately removed to a stable in an ambulance. We again made an effort to get him up, but did not succeed. The animal was apparently in a helpless condition. I made a careful examination and found al symptoms characteristic of azoturia, and I diagnosed it as such.

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[1] Presented at the annual meeting of the Pennsylvania State Veterinary Medical Association meeting, March 4 and 5, 1902.

I prescribed the ordinary form of treatment and left him in charg of two attendants. When I called the following day the animal wa still down, but I was pleased to learn that he had been up twic during the night. With some assistance the animal succeeded i getting up, and was able to stand with a little support on either side I then found there was something wrong with the position of th anterior limbs. They had a decided broken-down appearance, witl the ankles and heels resting on the ground, and toes turned up, exposing to view both soles. On examination of the tendons I founc them to be ruptured about the lower third of the metacarpal bones The rupture seemed to be complete in both, as a space between th torn ends of the tendons was easily detected. I decided it was a hopeless case, so ordered the animal destroyed.

The attendants did not notice any such deviation of the legs whil he was up through the night, so the rupture must have occurred a the time of the last effort in getting up.

We know that azoturia causes degenerative lesions in the muscl fibres in the early part of the disease, and statistics show that w sometimes have rupture of muscles, or even groups of muscles. As a result of these degenerative changes, which occur in their struggles and their violent efforts to get upon their feet, we sometime meet with extension of the muscles and tendons in azoturia.

Lippold has observed a case of extensive extension of the posterio limbs. The ergots were touching the ground and toes turned up, showing symptoms similar to the case I report.

It is true that azoturia rarely involves the anterior limbs, but I sincerely believe that the case I report was one in which both anterior limbs were involved, and that this disease was the primar cause of rupture, setting up degenerative lesions in the tendon fibre as well as the muscle fibres.

I submit this to you, hoping that it will be of some interest.

Dr. W. A. Conklin, of New York City, formerly connected with the editorial direction of the JOURNAL, was called to Pittsburg, Pa., in March to advise with the keeper of the Schenley Park Zoo as to the treatment and care of a hippopotamus suffering with some pulmonary lesion.

EDITORIALS.

ANOTHER STONE IN THE ARCH.

ONE by one are added the cut stones of legislation that soon will arch over the entire country with veterinary laws regulating, through State boards, the practice of veterinary science.

Much has been said in these columns, much has been done by the JOURNAL and by members of its editorial staff in urging in the past a more united front in the State of New Jersey, and we have rejoiced in common with all others at the great results obtained there in establishing one single strong association. Following in the path of this great stride, New Jersey now adds additional safeguards to her vested interests in the animal industry; strengthens veterinary education all over the land; lifts her veterinary profession to a higher plane, and makes for those who represent the State in the veterinary profession a body of enthusiastic and successful organizers, workers, and association members to which, henceforth, all other associations must look to their own laurels lest they be dimmed in the bright light now reflected from New Jersey. We congratulate the profession in New Jersey on the securing a good law, the creation of a State board, the closing up of the arch of triumph in veterinary progress. To those who have led the way we offer special congratulations, and to those who will constitute her first board we extend our sincere wishes. The new law and the new board will be found elsewhere in this number, and the law and the board are assurances of a better state of affairs in New Jersey and a demand that the law will not only be respected, but its mandates obeyed.

THE FIELD OF THE A. V. M. A.

THE JOURNAL wishes it could agree with its esteemed contemporary the *Review* on this all-important question. But the facts as they exist to-day cannot be ignored. The holding of surgical clinics finds its best place, its best work, in the field of local and State associations. It cannot be done under national auspices half so well, nor is it within their province when time is so limited to consider so many larger problems of general interest to our whole country. It is true that we should not ignore the general or routine practitioner but if he is only interested in seeing some surgical clinics or hearing an every-day article on spavin, cunean tenotomy, or ovariotomy, we are at a loss to know what is added to truly National Association strength by his presence. If surgical clinics draw into the national organization a large number of local practitioners in every city where we hold our conventions, and whose faces are not seen again at our conventions for the next five years, or we again return to the city near his location, we cannot conceive how our association is to grow in national importance or power. If a cheap initiation fee and small dues are attracting a large membership numerically, who look upon it as a good investment, sub rosa an office-wall certificate, an annual report that serves as a year-book, and replaces entirely a subscription to one or more veterinary periodicals, then it will be well to keep on the present plan until every veterinarian in the land may have the opportunity by our presence in his vicinity to get in and avoid the rush.

Neither are we ready for sectional work in our association, for all efforts along this line so far have proven dismal failures, and lessened materially our progress and importance. Sectional work will come when we have gathered in a large majority of the foremost men in all the various lines of our work, and not until then. It will be time enough for this when we reach the point that men no longer decline membership or to give up so much valuable time attending A. V. M. A. conventions that devote half their time in the consideration of subjects that all well-posted older graduates should know, and of which all graduates of recent years eligible to association membership are thoroughly versed in. It is time that broader association work along truly national lines should attract the attention of a greater number of those who direct National and State work to our sessions, and not find them attending National Live-stock Associations, Breeders' organizations, State and National sanitary conventions, and National and State boards of health conventions to consider subjects that should first be presented and dwelt upon in the sessions of the A. V. M. A., and from there go to these other organizations as the refined judgment of the profession as a whole. No, we are not satisfied with the proposition to continue to travel along this rut any longer, nor to let this so-called well enough alone.

LEGISLATION.

OFFICIAL COPY REPRINT.

Senate, No. 76, State of New Jersey, introduced February 17, 1902, by Mr. McKee. Referred to Committee on Miscellaneous Business.

AN Act to regulate the practice of veterinary medicine, surgery, and dentistry in the State of New Jersey, to license veterinarians, and to punish persons violating the provisions thereof.

Be it enacted by the Senate and General Assembly of the State of New Jersey:

1. The Governor shall appoint a Board of Examiners, to be known as the State Board of Veterinary Medical Examiners, said Board to consist of five members, who shall be persons of recognized professional ability and honor in the veterinary profession in this State, and who shall have practised veterinary medicine and surgery for at least five years immediately preceding such appointment. The term of office of the members of said Board shall be three years, or until their successors are appointed and duly qualified: *Provided, however,* That the members of the Board first appointed shall serve as follows: one for one year, two for two years, and two for the full term of three years, commencing on the first Monday of May, one thousand nine hundred and two, and thereafter each member shall be appointed for the term of three years. Each appointee shall, before assuming the duties of the office, and within thirty days after the receipt of his commission, take, subscribe, and file, in the office of the Secretary of State, the oath or affirmation of office. The Governor shall fill vacancies from death or otherwise for unexpired terms, and may remove any member of said Board for continued neglect of the duties required by this Act, for incompetence, unprofessional or dishonorable conduct.

2. The first meeting of the Examining Board shall be held on the first Monday in May, one thousand nine hundred and two, suitable notice in the usual form being given, with the notice of

their appointment, by the Secretary of State, to each of the members thereof, specifying the time and place of said first meeting. At the first meeting of the Board an organization shall be effected by the election from their own membership of a president, a secretary, and a treasurer. It shall have a common seal, and its president shall be empowered to issue subpœnas and to administer oaths in taking testimony in any matter pertaining to the duties of said Board; it shall make and adopt all necessary rules, regulations, and by-laws not inconsistent with the laws of this State or of the United States whereby to perform the duties and to transact the business required under the provisions of this Act.

3. Said Board shall hold two or more meetings for examinations at the capitol building of this State each year, due notice of which shall be made public at such time as they shall determine. At all meetings a majority of the members of the Board shall constitute a quorum, but the examination of applicants for license may be conducted by a committee of one or more members duly authorized by said Board. Said Board shall examine all diplomas as to their genuineness, and each applicant for a license shall submit to a theoretical and practical examination, said examination to be written, oral, or both. Such examination shall include the following subjects: veterinary anatomy, physiology, chemistry, surgery, dentistry, practice of veterinary medicine, obstetrics, pathology, bacteriology, diagnosis, materia medica, therapeutics, pharmacy, zoötechnics, sanitary medicine, hygiene, meat- and milk-inspection, and veterinary jurisprudence.

4. Said Board shall issue forthwith to each applicant who has passed such examination successfully, and who shall have been adjudged duly qualified for the practice of veterinary, medicine, surgery, and dentistry, a license to practise the same in the State of New Jersey. Such license issued pursuant to this Act shall be subscribed by the president and secretary of the Board of Veterinary Medical Examiners. It also shall have affixed to it, by the person authorized to affix the same, its corporate seal. Before said license shall be issued it shall be recorded in a book kept in the office which said Board shall establish for the purpose of carrying out the provisions of this Act, and the number of the book and the page therein containing said recorded copy shall be noted on the face of said license. Such records shall be open to public inspection, with proper restrictions as to their preservation.

5. Upon presenting to the Board a certified copy of a court record showing that a practitioner of veterinary medicine, surgery, or dentistry has been convicted of a felony or misdemeanor, that fact may be noted upon the record of licenses, and the license and registration shall be marked cancelled. Any person whose license shall be so cancelled shall be deemed as an unlicensed person, and, as such, subject to the penalties prescribed for other unlicensed persons who practice veterinary medicine, surgery, or dentistry in this State.

6. From and after the first Monday in May, one thousand nine hundred and two, any person not hereinbefore registered to practise veterinary medicine, surgery, and dentistry in this State, or desiring to enter upon such practice, shall deliver to the secretary of the Veterinary Medical Board, upon a payment of a fee of ten dollars, a written application for license, together with satisfactory proof that the applicant is more than twenty-one years of age, is of good moral character, has obtained a competent school education, and has received a diploma conferring the degree of veterinary medicine from some legally incorporated veterinary college or university of the United States, or a diploma or license conferring the full right to practise all the branches of veterinary science in some foreign country (which, in the opinion of said Board, was in good standing at the time of issuing said diploma). Applicants who shall have received their degree in veterinary medicine after the first Monday of May, one thousand nine hundred and two, must have pursued the study of veterinary medicine for at least three years, including three regular courses of lectures of at least six months each in different years, in some legally incorporated veterinary college or university, prior to the granting of said diploma or foreign license. Such proof shall be made, if required, upon affidavits. Upon making the said payment and exhibiting the before-named proof the Examining Board, if satisfied with the same, shall issue to such applicant an order for examination. In case of failure at such examination the candidate, after the expiration of six months and within two years, shall have the privilege of a second examination by the Board of Veterinary Medical Examiners, without the payment of an additional fee: *And it is further provided,* That applicants examined and licensed by the State Board of Veterinary Medical Examiners of other States, on payment of a fee of ten dollars to the Examining Board of this State, and on filing in the office of said Board a copy of said license, certified by the affidavit of the

president · or secretary of the Board of such other State, showin also that the standard of the examination and other requirement adopted by that State Board of Veterinary Medical Examiners i substantially the same as that provided for by this Act, shall without further examination, receive a license conferring upo the holder thereof all the rights and privileges provided for b sections 4 and 6 of this Act.

7. From and after the first Monday in May, one thousand nin hundred and two, no person shall enter upon or continue the prac tice of veterinary medicine, surgery, or dentistry, in any of thei branches, in the State of New Jersey, unless he has complie with the provisions of this Act, and shall have exhibited to th clerk of the county in which he desires to practise veterinar medicine, surgery, or dentistry a license duly granted to him a hereinbefore provided; whereupon he shall be entitled, upon th payment of one dollar, to be duly registered in the office of th clerk of the court of common pleas in said county. Any perso using any title or degree appertaining to the veterinary profession or practising veterinary medicine, surgery, or dentistry, in any o their branches in this State after the first Monday in May, one thousand nine hundred and two, without being licensed and registere in conformity with the provisions of this Act, or otherwise violating any of its provisions, shall be guilty of misdemeanor, an upon conviction thereof shall be punished for the offense by a fin of not less than one hundred dollars, or by imprisonment in th county jail for a period of not less than thirty days, or by bot fine and imprisonment, and for each subsequent offense the punishment shall be double that of the preceding one; and it shal be the duty of the respective district attorneys of the counties o this State to prosecute violations of the provisions of this Act.

8. It shall also be lawful for the said Board to institute civi proceedings in any court of competent jurisdiction against an person, company, or association for the violation of any of th provisions of this Act. Such proceedings shall be brought in a action on contract, and upon conviction thereunder the person, company, or association so convicted shall be liable to a fine, which shall be the same amount fixed in the preceding section o this Act; and all fines and penalties collected by any court under the provisions of this section of this Act shall be paid over to the treasurer of this Board, to be received and disbursed by him in accordance with the provisions of this Act.

9. Nothing in this Act shall be construed to interfere with or

punish veterinarians in the United States army, or in the United States Bureau of Animal Industry, while so commissioned, or any lawfully qualified veterinarians residing in other States or countries meeting registered veterinarians of this State in consultation, or any veterinarian residing on the border of a neighboring State and duly authorized under the laws thereof to practise veterinary medicine or surgery therein whose practice extends into the limits of this State: *Provided*, That such practitioner shall not open any office or appoint a place to meet patients or receive calls within the limits of New Jersey; and nothing in this Act shall be construed to prohibit the practice of veterinary medicine, surgery, or dentistry, by any practitioner who shall have been registered in any county in this State before the first Monday in May, one thousand nine hundred and two, and one such registry shall be sufficient warrant to practise veterinary medicine, surgery, or dentistry in any county in this State. Nothing in this Act shall apply to persons gratuitously treating animals in cases of emergency: *Provided*, They do not represent themselves to be veterinarians or use any title or degree appertaining to the practice thereof.

10. The expenses of said Board and of the examinations shall be paid from the license fees and fines above provided for, and if any surplus remains the same may be distributed among the members of said Board as a compensation for their services as members, but otherwise they shall receive no compensation whatever.

11. All Acts or parts of acts, general or special, now existing not in accordance with the provisions of this Act or inconsistent herewith be and the same are hereby repealed.

12. This Act shall take effect immediately.

Approved March 17, 1902.

PENNSYLVANIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

THE annual meeting of this Board for the examination of applicants desiring to obtain a license to practise veterinary medicine and surgery in the State of Pennsylvania will be held in Philadelphia, Pa., June 16 and 17, 1902.

W. HORACE HOSKINS,
Secretary.

3452 LUDLOW ST., PHILADELPHIA, PA.

NEW STATE BOARD OF EXAMINERS.

THE Governor of New Jersey has appointed the following member of the profession on the Board: Drs. Wm. Herbert Lowe, Paterson N. J.; Whitfield Gray, Newton; T. E. Smith, Jersey City; T Earle Budd, Orange, and T. B. Rogers, Woodbury, N. J. President Lowe announces that an examination for license to practis veterinary medicine, surgery, and dentistry will be held in the Stat House, Trenton, on Tuesday, June 24, 1902.

CORRESPONDENCE.

REGARDING "COLUMELLA'S" PLAN FOR CONTROLLIN TUBERCULOSIS.

EDITOR JOURNAL OF COMPARATIVE MEDICINE, ETC.:

THE application of the plan for controlling tuberculosis propose by "Columella" in the January number of the JOURNAL present at once insurmountable obstacles.

Having quite an extensive experience in dealing with tuberculosis in cattle, and being familiar with the sentiment of herd owner I know that the plan would not be practical.

In the first place, persons could not be found who would be willing to take condemned cattle and establish and maintain a herd o them. Investing time and money in that sort of an enterpris would be far from profitable. There is no profit in tubercular cattle One or more tubercular cows may produce more than the actua expense of keeping them for a short time, but a badly-infecte herd of tubercular cattle is a source of loss to the owner; for whil a few cows are bringing in a small profit, there are always member of such a herd very badly emaciated, which produce very little, an soon die or have to be destroyed. Why would anyone wish to pu time, money, and care on such a herd? I have known of man herds that were conducted in a manner to make them earn a goo profit, but owing to tuberculosis these herds did not bring a dollar o profit to the owners for years.

Could anyone be induced to establish such a herd it would be fo a short existence only.

In the second place, there appears an objection that could not be overcome: the public would not buy the products of a herd known to be tubercular. While the public might be educated to the fact that their products were not infectious to the extent of producing tuberculosis in the consumer, yet there would not be a demand for "dead bugs," as the milk and butter could be properly said to contain.

I have never seen a method as efficient as the Pennsylvania plan of handling tuberculosis of cattle, and the only chance for improvement would be to procure larger appropriations, so that the work could be carried on more rapidly.

To establish and maintain competent boards as proposed by "Columella" would involve sufficient expense to go a good ways toward paying the herd owners a fair price for their tubercular cattle and having them destroyed. There is no *real value* to a tubercular cow, and while some owners of herds infected with tuberculosis are loath to believe it, or to admit it, for a while, yet when they come to know more of the real facts about this dreadful disease, they are only too willing to have their herds inspected and the reacting cattle destroyed for a small compensation.

And in the localities where the herd owners are the best informed on the subject I find that they would not have the diseased cattle in their herds, even though there was no recompense received for them from the State.

I do not mean to say the method as proposed by "Columella" for controlling tuberculosis in cattle, if it could be put into operation at all, is not better than no plan at all; but I do mean to say that instead of being an improvement over the work as done in Pennsylvania, it is in every way inferior. For, under the management of the State Live-stock Sanitary Board, Pennsylvania is in localities being entirely freed from tuberculosis where it existed to an alarming extent, and if the work can go on for a few years under as good management as it has had by the present board, the last case of tuberculosis in cattle will be disposed of.

All that is needed is that the public shall become better educated as to the true facts regarding tuberculosis, and not only will it be an easy matter to secure necessary legislation to carry on the work properly, but there will not be a market for milk or butter or meat that comes from cattle that are *not known* to be free from tuberculosis.

R. G. RICE, D.V.S.

A. V. M. A.

President Winchester has appointed the following members Local Committee of Arrangements for the annual meeting to b held in Minneapolis: Drs. C. C. Lyford, Chairman; S. D. Brimhall, M. H. Reynolds, J. G. Annand, J. S. Butler, J. N. Gould A. Youngberg, S. H. Ward and K. J. McKenzie.

The Local Committee has met and organized, forming severa sub-committees, and is actively at work arranging to entertain th largest number of veterinarians ever gathered together on America soil. Members of the committee are visiting State Association and endeavoring to enlist interest in and support of this meeting.

NECROLOGY.

John R. Comstock, veterinary surgeon, Pittsburg, Pa., died a the West Penn Hospital, in March, at the age of fifty-six years He is survived by a wife and daughter.

MARRIAGES.

Dr. John Anderson, of Seward, Nebraska, surprised his man friends by taking unto himself a better-half in the person of Mis Myrtle Boyer, of his city. The veterinarians of Nebraska ha considered the doctor a confirmed bachelor, and unanimously congratulate him upon joining the army of Benedicts. The doctor and hi bride started on their wedding tour with the cannon booming, an the citizens shouted words of good cheer, and upon their retur were promised an old-time charivari. The wedding trip included week's sojourn in Kansas City.

Dr. William H. Lowe, of Paterson, N. J., undaunted by th great conflagration that caused the loss of his entire hospital library, and contents, continued to direct the fight in the Nev Jersey State Legislature for a better law regulating veterinar practice in that Commonwealth.

COMMENCEMENT EXERCISES.

KANSAS CITY VETERINARY COLLEGE.

The eleventh annual commencement exercises of this college were held in the college hall, March 12th, 7.30 P.M. The Faculty address was delivered by Hon. J. A. McLane. Diplomas were presented by Dr. R. C. Moore to the following: James B. Boazman, James M. Lawrence, James Mahon, Henry R. McNally, E. Manford Nighbert, Robert A. Phillips, Erni V. Robnett, Morey A. Sappington, Frank M. Starr, Orville A. Stingley, Fred W. Weston, and Zachary Veldhius, D.V.S. (post-graduate). Class response was by Dr. James Mahon. The hall was filled to overflowing with the friends of the students, and the programme proved delightful to all.

On the 6th ult. the college gave its annual dinner to the students, Faculty, and friends of the college, at the Coates House, with about 140 covers. The *menu* was served in a most pleasing manner, Dr. R. C. Moore, acting as toast-master. The following toasts were responded to: "Ethics," Hon. J. A. McLane; "Three Years," Fred. W. Weston; "The Middle of the Way," Lloyd Champlain; "Freshmen," Chas. E. Wiggins; "K. C. V. C. Alumni," Dr. B. F. Kaupp; "The Pathogenic Germ," Dr. I. J. Wolf; "The Bureau of Animal Industry," Dr. A. G. G. Richardson; "The Veterinary Profession from a Layman's Point of View," Hon. Alfred Weston; "The K. C. V. C.," Dr. S. Stewart.

THE WESTERN VETERINARY COLLEGE.

The fifth regular session of this college closed on March 19, 1902, with nineteen graduates, who received their diplomas. Following are their names and addresses: Charles W. Bigarel, Wendell, Minn.; Judson R. Flanders, Cameron, Mo.; Roy Grimsley, Americus, Kas.; W. H. Gatchell, Kansas City, Mo.; Fred G. Cook, Carthage, Mo.; W. Harry Lynch, Beverly, Mass.; James R. Petty, Winston, N. C.; Harvey E. McGee, Osceola, Iowa; Howard G. Merwin, Dowagiac, Mich.; A. A. Motley, Alpena, Mich.; Urie B. Reynolds. Cynthiana, Ind.; Timothy Riley, Canton, Ill.; James H. Scott, Newton, Iowa; John Servatius, Ottawa, Kas.; William

J. Wilson, Canton, Ill.; George E. Wallace, Tracy, Minn.; Charle Weeks, Logan, Iowa; Joseph Wenger, Dutton, Mich.; E. C Whitaker, Oak Ridge, Mo.

McGILL UNIVERSITY.

THE annual convocation for the conferring of degrees in comparative medicine and veterinary sciences at McGill University wa held March 27, 1902. Dr. Craik presided; Sir William McDonald represented the governors, and Principal Peterson was there a vice-chancellor. Others present were: Dr. Duncan McEachra dean of the Faculty; Dean Johnson, Dean Bovey, Dean Roddic Dean Walton, Mr. Justice Davidson, Dr. Charles McEachran, D Wesley Mills, Dr. Morrow, Dr. Ruttan, Dr. Girdwood, Professo Penhallow, Professor Capper, Professor Chandler, Mr. W. Vaugha Mr. W. A. Nicholson, Mr. Recorder Weir, and Mr. Chas. Alexander.

Dr. A. R. Douglas read the class valedictory, in which he dwe on their gratitude for the zealous and conspicuously able instructio of the professors, and urged the difficulties, responsibilities, and importance of the veterinary calling.

Dr. McEachran wished the students God-speed, saying no scho in the Dominion had turned out so many leading veterinarians a the McGill Faculty, hampered in many ways as it is. He urge the great importance of the science. When individual horses ar valued at $100,000, and cows at $15,000, and dogs at $10,000, th need of trained veterinary doctors is apparent. In the United Stat there are $2,000,000,000 invested in stock, and an annual loss o $20,000,000 from hog cholera alone. Moreover, the welfare o agriculture and the public food supply depend largely upo them. He went on to deal with the growing recognition of th sciences in the American colleges, and pointed out the necessity endowments for the carrying on of what is only one branch of th great science of medicine. The Provincial Legislature had at la recognized them by passing an act to regulate the right to assum the title and to practise.

Dr. Peterson expressed his sympathy with the work of the Faculty, saying that at the University of Pennsylvania the efficienc of the veterinary faculty is continually rising, and he was extremel pleased at the decision of Harvard to take up their work in comparative medicine again with some of the endowments lately give for the study of medicine. He concluded with a few words of commendation of the work done by the students and professors.

Dr. Craik said it had been one of his first duties as dean of the Faculty of Medicine to assist in the incorporation of the veterinary school in the university. He would remind them that his own Faculty had struggled along for years before reaching its present position of stability, and he believed their sun of prosperity would soon rise.

The candidates for the degree of D. V. S. were capped by Principal Peterson, as follows: W. Reid Blair, Alexander R. Douglas, Seymour Hadwen, A. D. Harrington, G. A. Kennedy, W. Manchester (in absentia), W. H. Spear, and J. W. Symes.

Medal for best examinations during the three-years' course, A. D. Harrington; prizes for veterinary medicine and surgery, A. R. Douglas; cattle pathology, A. D. Harrington; materia medica, A. D. Harrington; anatomy, T. C. Hays.

Extra prizes for the best essay read before the Veterinary Medical Association: 1st, A. D. Harrington; 2d, A. R. Douglas; 3d, W. R. Blair. For the best essay read before the Psychological Society: 1st, A. D. Harrington; 2d, F. M. Gray.

McKILLIP VETERINARY COLLEGE.

A NEW era was inaugurated at the sixth annual commencement exercises of this college. The growth of the institution rendered it necessary to obtain a larger hall than in former years to accommodate the guests; in consequence the exercises were held at the auditorium of the Y. M. C. A. building, Chicago, Ill., March 28th, at 7.30 P.M. The exercises were opened by the Rev. Pleasant Hunter, D.D., after which followed the conferring of the degree of the college (M.D.V.) by Dr. M. H. McKillip upon the following gentlemen: C. P. Draper, A. H. Fehr, Robert Frame, Charles Frazier, T. P. Galbraith, H. L. Jackson, George Jerome, John Keppel, C. A. Mack, S. H. Miller, C. W. Moore, M. W. Shempf, J. F. Sylvester, B. C. Tillman, Thomas Trinder, F. R. Whipple, T. T. Kendrew, J. P. Luxmore, H. A. Walker.

The address of the evening was delivered by Dr. James G. Kiernan, and prizes were awarded by the Secretary, Dr. John J. Millar, as follows: Highest average for three years, John Keppel (presented by the McKillip Veterinary College); highest average for senior year, John Keppel (presented by Faculty of McKillip Veterinar College); highest average for junior year, W. G. Langley (presente by Faculty); highest average for freshman year, E. D. Anderso (presented by Faculty); highest average in bacteriology, John Keppel (presented by Prof. I. D. Rawlings); highest average in anatomy (freshman), A. Paul (presented by Prof. F. S. Schoenleber) highest average in materia medica, M. W. Schultz (presented b Prof. T. B. Newby).

Following the exercises about 150 persons adjourned to the banqueting hall, where a most elaborate menu was given in honor o the class of 1902. Toast-master Prof. E. M. Reading contribute greatly to the success of the evening's entertainment; Howard L Jackson responded for the graduating class; W. G. Langley of th senior class, and J. W. Eastland of the junior class. The differen members of the Faculty, as they were respectively called upon b the toastmaster, responded, and in many instances were very witt and amusing. Rev. Pleasant Hunter paid a very high tribute t the graduates, and gave to them a talisman for their future guidance A very regretable feature was the absence from the banqueting tabl of Dr. McKillip, who, on account of his recent severe illness deemed it advisable not to remain after the graduating exercises.

An innovation in the history of the McKillip Veterinary Colleg was marked by the final exercises of the class of 1902.

GRAND RAPIDS VETERINARY COLLEGE.

THE fifth annual commencement exercises of this college wer held on the evening of March 28th at 215 Butterworth Avenue Grand Rapids, Mich. Dr. J. B. Griswold, President of the college gave the opening address, and told of the many failures and triumphs of the members of the class of 1902. He also gave them valuable advice. The Rev. R. H. Fortescue Gairdner delivered a address. He spoke of the higher attainments of the profession asking the graduates to not only make successful records as professional men, but to always carry manliness with their medicine cases Professor Bessey gave a scientific address, dealing with the history of the science from a physiological stand-point. Fred. L. Small, th valedictorian, delivered an address on the future of the individua members of the class. This was followed by remarks of Dr. L. L Conkey, founder of the school, and Dr. William A. McLean, Dean Judge Willis B. Perkins, President of the Board of Trustees of the college, made a few remarks and presented the diplomas to the twenty-three graduates: A. Beck, Auburn, Iowa; F. Brouwer, Holland, Mich.; E. Boesewetter, West Bend, Wis.; E. Branyan, Bronson, Mich.; H. J. Getman, Traverse City, Mich.; George Rainy Gaggin, Australia; C. E. Greenwalt, Topeka, Ind.; James F. Hanley, Boston, Mass.; W. A. Haynes, Jackson, Mich.; A. G. Hersey, Grand Rapids, Mich.; E. L. Krieger, Benton Harbor, Mich.; F. S. Kinison, Dawson, Pa.; W. G. V. Lyons, South Norwalk, Conn.; Elmer D. Nash, Helena, Mont.; M. L. Pattison, Ridgeway, Mich.; Herman F. Sass, Toledo, Ohio; E. J. Sowerby, Rockford, Mich.; Fred. L. Small, Beulah, Mich.; J. F. Sudman, Boyne City, Mich.; A. R. Trickel, Brownton, Wis.; Harry W. Wise, Rife, Pa.; Joseph Wardle, Flint, Mich.; W. W. Sammit, Indianapolis, Ind.

Dr. W. A. McLean, of Greenville, Mich., took a post-graduating course; Dr. W. E. Beesey, of Grand Rapids, Mich., and Dr. J. E. Jaynes, of De Witt, Mich., received the honorary degree of Doctor of Veterinary Science.

TWO SUCCESSFUL CASES OF ARYTENECTOMY. Detante operated upon two cases. The first was a Belgian horse which roared for four and one-half years. The operation was performed in the usual manner in 1900, and in eight weeks the roaring had disappeared. The horse has not roared up to the present.

The second case was a half-bred operated on in May, and in August did not roar at his highest speed.—*Rec. de Med. Vet.*

TRICHLORIDE OF IODINE IN DISTEMPER. Zimmerman, of the Budapest Clinic, has experimented with trichloride of iodine in distemper in different breeds of dogs, 5 c.c. of 1 to 2000 aqueous solution, given hypodermically. From numerous observations the author concludes that this agent has given especially good results at the beginning of the disease. It was most efficacious in the gastro-intestinal form. Its prophylactic properties have not been tested.—*Osterreich Monats.*

Drs. Carter and Conard, of Philadelphia, conducted a newspaper controversy in March relative to the conditions of cleanliness, etc., that applies to the milk supply of the "City of Brotherly Love." All of their allusions to the two sides of this question were not of the most brotherly kind.

SOCIETY PROCEEDINGS.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

THE twentieth semi-annual meeting was called to order by Presiden Joseph Hughes at the Hotel Fey, Peoria, Ill., February 19, 1902. Th following members were present:

Drs. J. T. Nattress, Delavan; Albert Babb, Springfield; L. C. Tiffany Springfield; D. E. Kinsella, Chillicothe; F. H. Ames, Canton; M. A Storry, Bradford; N. I. Stringer, Watseka; T. J. Gunning, Neponset; H A. Pressler, Fairbury; C. D. Hartman, Peoria; John Scott, Peoria; E. J List, Havana; W. H. Welch, Lexington; A. C. Worms, Chicago; E. L Quitman, Chicago; Joseph Hughes, Chicago; Jas. Smellie, Eureka.

Visitors: Drs. M. C. Eckley, Galesburg; E. D. Yrion, Elmwood; Jas Wood, Pekin, and Mr. Louie Riesz, representing the drug firm of Sutliff & Case, of Peoria.

The minutes of the last meeting were read and approved.

The following applications were received and on motion were elected t membership: Dr. L. C. Tiffany; vouchers, Drs. John Scott and T. J. Gunning. Dr. D. E. Kinsella; vouchers, Drs. John Scott and Jos. Hughes.

The bills for Secretary's fee and stationery for $40.50 were audited an ordered paid. Receipts were $13.

Report of Treasurer showed balance on hand of $42.85.

Mr. Riesz, on behalf of Sutliff & Case, extended an invitation to visi their elegant establishment, which was accepted, and the meeting adjourne until 1 P.M.

The Association reconvened at 1 P.M.

Dr. Albert Babb read his paper on "The Business Relations of the Veterinarian."

Discussed by Drs. Quitman, Stringer, Worms, Scott, and Hughes.

Dr. H. A. Pressler read his paper, "A Peculiar Complication o Strangles."

Discussed by Drs. Quitman, Stringer, List, and Hughes.

F. H. Ames read reports of cases:

1. A peculiar growth on stifle of cow.
2. Case of retained fœtus in womb.
3. Scirrhus cord.

Discussed by Drs. Stringer, Gunning, Nattress, and Welch.

Dr. Nattress read report of cases as follows:

Trephining both sinuses.

Amputation of rectum.

Remarkable recovery of dog which had its leg nearly cut off.

Discussed by Drs. List, Quitman, and Worms.

Dr. Tiffany gave a short talk on the so-called "Cornstalk Disease."

The following resolutions were offered and adopted unanimously:

Resolved, That the Illinois State Veterinary Medical Association doe hereby protest against the custom compelling graduates of recognized three year schools to pass the examination before the State Board of Veterinary Examiners.

Resolved, That the Illinois State Veterinary Medical Association does hereby protest against any professor or instructor connected with any veterinary college in the State serving on the State Board of Veterinary Examiners.

The By-laws, Article I. Section 2, were changed so as to read December instead of November.

Adjourned, to meet at Chicago in December at call of President.

W. H. WELCH,
Secretary.

OFFICIAL REPORT OF THE PROCEEDINGS OF THE FOURTEENTH ANNUAL MEETING OF THE IOWA STATE VETERINARY MEDICAL ASSOCIATION.

Held at Des Moines, Iowa, February 11 *and* 12, 1902.

(Concluded from page 258.)

REPORT OF COMMITTEE ON SANITATION.

By way of introduction or explanation of this report, its chairman wishes to state that no effort has been made to advance any new or original ideas on this subject, but that the committee has gathered from contemporary veterinary literature and personal observation a few of what seemed to be the most pertinent facts and theories as applied to present local conditions.

The work has all been done in the last three weeks. It was arranged, at the suggestion of your worthy Secretary, to give Dr. Miller the ground covering State and municipal meat-inspection. His plan of work was to send out about twenty letters to each of the cities and to some of the more important towns of our State, with the following questions:

1. How many slaughtering establishments have you, not including those having Federal Government inspection?
2. How many are within the city limits?
3. Give approximate number of animals slaughtered annually.
4. Are all of these animals inspected before and at the time of slaughter by a city official?
5. What are the qualifications of the inspector?
6. What disposition is made of the condemned parts and carcasses?

He states that only a few replies have been received, and that they were very slow in coming in—the usual fate of such inquiries, so far as I am able to determine. In fact, there is no means whereby any statistics of this nature can be gathered. His report is inserted verbatim in the body of this report. To Dr. Gillian was assigned the task of reporting on State and municipal milk-inspection. His report was placed in my hands yesterday, February 10th, and will be read as given. Your chairman then had left for his consideration the State control of contagious diseases and the laws regulating this work. A word in passing may be devoted to a consideration of the relations these sustain, or should sustain, to those of our sister States and those of the Federal Government. We have no instantaneous, sure-shot, cut-and-dried remedy to recommend for the cure of all the ills that ignorance and contempt of sanitary law engender. We are also willing to concede in the broad field of sanitary science the relative importance of the work of the regular physician, the sanitary engineer, the bacteriologist, the chemist, and all others engaged in any branch of the complicated work of the modern sanitarian, even to our friend the original surgeon, the barber, in his legal attempts to assure us that he is shaving us with a clean razor. Certain it is that the keystone of progress in modern medicine is prevention rather than cure. We believe that all sanitary work should be concentrated into national, State, and local Boards of Health which work together harmoniously, and that this work should be directed by these boards; also, that any State or municipal sanitary laws, rules, or regulations should as far as possible supplement or augment the Federal system already established, and should not entail any unnecessary hardships or inconveniences upon those directly concerned.

It is almost self-evident that no State, with our modern methods of commercial activity and free exchange of all commodities, can of itself protect all its interests from invasion from without and from enemies within without the help of the General Government. And, indeed, after conceding all that the General Government has done or is willing and able to do, there will still be enough left to keep all trained sanitarians busy at work for the remainder of our natural lives at least.

MUNICIPAL MEAT-INSPECTION.

To ascertain what is being done in municipal meat-inspection, your committee sent out a letter of inquiry to the Board of Health of each city and some of the more important towns of our State. Only five or six replies have been received. These are, however, from places that may be considered a fair average of the whole, as they are among the representative cities of the State.

All have slaughtering-houses, varying in number from two to five, some of which are situated within the city limits. We have not been able to ascertain the number of animals slaughtered annually, but it is safe to state that the aggregate number would amount to many thousands, yet the answers received would indicate that none of these animals is inspected either before or at the time of slaughter. That there are some diseased animals among all of these, and parts of carcasses that should be condemned, there is no doubt; but nobody has any knowledge of what disposition is made of them or to what use they are put. We can imagine, however!

One reply indicated that the subject had been discussed, but that no action had been taken.

The great majority of our people are not aware of the necessity of this inspection. The danger of a contaminated meat-supply is best known to veterinarians, and it is incumbent upon us to make known this danger to others and do all we can to bring about an adequate system of inspection. To this end your committee believes that veterinarians should be made members of Boards of Health whenever practical, and we would recommend that articles be published from time to time in our newspapers bearing upon the different phases of this subject; that each municipal council should pass an ordinance bringing each slaughter-house in the vicinity under municipal control, requiring them to do all their slaughtering at one abattoir, and that at a time when the council can best provide a qualified inspector, chosen by them, and to whom he must render a regular report.

DAIRY AND MILK-INSPECTION.

It has been requested by the chairman of the Sanitation Committee that I prepare a report on "Dairy and Milk-inspection," and setting forth what it should be. The inspection of the dairies and milk in my part of the State has received no attention at all in regard to sanitary conditions, and the dairymen conduct their dairy business in a way that is satisfactory to themselves, taking no thought of the consumers of the milk.

The dairy and its product should receive our best attention, as there is no one article of food in such universal use as is milk. Possessing as it does all the elements necessary for primary growth, it is the initial and only food for the newly born, and continues as such for months. Milk will receive and convey the odor of its surroundings. The unpleasant flavor of certain vegetables and sour or fermented foods which the cow may eat is readily detected in milk, and of all food that reaches our table none affords a more genial habitation for nearly every form of bacterium than milk. Not a year passes but that we find living proof of communicability of disease of various kinds through the medium of milk.

Milk is part of the cow, and is therefore animal matter. If the cow is tuberculous her milk is part of a diseased cow, and no matter how much it is boiled it still remains part of a diseased cow, and should not be used for human food. Now, while we are trying to protect the public against the use of this diseased milk we should also protect the dairyman and warn him against buying well-bred cows to increase the richness of his milk simply because he can buy them cheap, lest he introduce some disease with them into his herd. I doubt if anyone who has not been actually engaged in the inspection of dairy stables can appreciate the condition in which cows are sometimes found. Inflammation of the udder is a very common affection, and in this case the secretions from the diseased organ pass away with the milk. In some cases there is tuberculosis of the organ, when, of course, the condition is even more serious. We may readily see that one or two diseased cows can contaminate the milk of a whole herd and render it unfit for use. There are many cases on record in which there is undeniable proof of the spread of typhoid fever, diphtheria, and many other forms of disease through the medium of milk.

The dairy industry is getting to be a very common one in our country, especially in the larger cities, and we find only a small portion of the dairies under sanitary inspection. In this field I believe we can do a great work for humanity. We should impress upon the dairyman the criminality of selling milk from diseased cows, and induce him to apply sanitary principles to his dairy, such as thorough cleanliness, light, good ventilation, pure water-supply, and good, wholesome food.

We should be in touch with our health officers in our locality, working together in one common cause to maintain the health of the community. It is along this line of work that the veterinarian can make for himself a reputation worthy of his calling. The only way these things can be accomplished is by legislation.

It now remains with this Association to use every means in their powe to see that some proper law is passed by our Legislature requiring that al dairies should be under strict inspection.

STATE CONTROL OF CONTAGIOUS DISEASES.

" Regarding contagious animal diseases, our State this year seems to b remarkably fortunate, so far as I am able to discover. The one diseas that overshadows all others in its peculiarly slow, insidious, and almos imperceptible, but none the less fatal, progress marches on almost unhindered and, I might say, by the large majority yet unknown. Tuberculosi seems still to elude all sanitary attempts of States and nations to satisfactorily control its ravages among human beings or their animal servants. Ou State, up to within a few years, has been comparatively free from its gras on our domestic animals; but we are fast becoming, as it were, a dumpin ground of high-bred infected stock from other States used in our highe bred herds for the supposed purpose of improvement. From these it i carried to all classes of stock and to all localities into which they ma happen to be taken. Perhaps the warning recently given by the Secretar of Agriculture against the importation of high-bred stock, together wit the tuberculin test imposed on all imported stock under his direction, wil do much to educate those concerned as to the nature and prevalence of th disease.

The stock owner should remember that, even though there is at presen some reason to believe or rather to hope that the principal source of infection for human beings is other human beings, and for animals is othe animals, an ounce of prevention in either case is worth many pounds o cure. The modern history of our knowledge of this disease is largely recital of the achievements of Prof. Koch and his influence on the work o other modern investigators, and may be divided into three chief epochs the first dates from his modest announcement, in 1882, that he had trace tuberculosis to the presence of a bacterial parasite. Seldom, if ever, ha any medical discovery been received immediately with such intense interest, and yet the ground at that time was thoroughly broken for th reception of this seed, which immediately took root and thrived like th proverbial green bay-tree. This discovery gave a wonderful impetus t the work of modern pathology.

The second epoch dates from the somewhat more sensational announcement of the secular press, in 1890, of his discovery of a cure for this diseas in tuberculin. Prof. Koch was then in the employ of his government at salary of $7000 per annum, besides a pension, had one of the finest laboratories for bacteriological research in the world, and was assisted by a well-trained and well-paid corps of assistants. Though tuberculin did not fulfi its promise as a curative agent, it has paid its cost many times over as diagnostic agent.

The third epoch was ushered in last summer at the British Congress o Tuberculosis by the widely heralded announcement by this same Prof Koch, that human tuberculosis cannot be transmitted to cattle, and ver strongly intimating the reverse conclusion, that animal tuberculosis is ver seldom if ever transmitted to the human being. This latter part especially has raised a storm of protest among investigators the world over, and even though the specific contention may be proved beyond a doubt untrue, it will have accomplished a grand result by spurring on its final settlement.

In reviewing the legislation by the different States and Territories on this subject as compiled by the Department of Agriculture in Bulletin No. 28 we find forty-nine different laws or absences of law enumerated regulating or intended to regulate this malady in the different States and Territories.

The laws of our own State make no specific reference to tuberculosis. The only mention is in Rule 12 of the rules and regulations of the State Board of Health, which reads: "In suspected cases of bovine tuberculosis the tuberculin test shall be recognized as a valuable diagnostic." This is excellent as far as it goes, but whether this declaration is all the law in the case will warrant or the expediency of circumstances permit, we are without the necessary data to judge. The State Veterinarian, by virtue of his office as a member of the State Board of Health, is looked upon as the State veterinary sanitarian, and if the law as it now exists is too vague and indefinite to allow of anything more explicit he should have the hearty and concerted support of every graduated veterinarian and his friends in this State to bring about the passage of a law or the adoption of rules and regulations that his experience will have shown to be practical.

The next most insidious disease which the sanitarian of this State has to deal with is, perhaps, glanders. We believe this disease to be more generally understood and feared by the community at large than is tuberculosis.

Anthrax, so far as I have been able to determine, has not gained any permanent foothold in our State as it has in certain States farther South on the Mississippi. There is, however, always a possibility of its invading our territory.

Sporadic outbreaks of rabies and other infectious diseases have been discovered within our borders, and were promptly and efficiently handled by the State Veterinarian and his assistants.

Hog cholera and swine plague for some reason or other seem to have spent their fury, and the hog has seemed to enjoy extraordinarily good health the past season. How much this may be due to an enforced economy of feeding, on account of the high prices of grain, I shall leave you and the producer to conjecture. Certainly it seems that a large part of the annual loss from this source could be obviated by intelligent sanitary measures. It will certainly not be contended that this improvement has been brought about by the strict enforcement of the law against buying, selling, or giving away the carcasses of hogs dead from this disease, or against the transportation of infected hogs over the public highways.

It would be highly interesting and instructive to know how much the prevalence of this disease has been lessened by the general early sale of all suspicious hogs for immediate slaughter, and the consequent removal of these centres of infection with as little delay as possible, although this is in direct opposition to the intention of the law. This law, however, has been of inestimable value in fixing a large per cent. of the loss on the original owner of this stock by his willingness to refund money paid for diseased stock rather than stand for prosecution under the statute. In passing I might remark that I do not know of a better or more economical plan of rendering innocuous any carcass or part of a carcass affected with an known contagious disease than by the method of tanking now employe around any large slaughter-house; and this one point alone would rende desirable the consolidation of the little country slaughter-houses into on well-equipped house, if for no other reason. In this way the differen centres of infection operating through the feeding of offal in a raw state t other stock would be eradicated.

As to the transportation over our railroads of stock intended for breedin or feeding, we believe that this can be done only in freshly disinfecte cars. The stock should be loaded at temporary movable chutes that hav likewise been recently disinfected. The same precautions should b observed in unloading.

Regarding sheep scab, I wonder how many of our members know of th provision of our code for the handling of this malady, and whether it ha ever been enforced; and, if so, why it cannot be made to come under th jurisdiction of the State Veterinarian.

Finally, regarding legislation to right some of these matters, your chairman recommends the concentration of our energies through our Committe on Legislation, with the object of procuring legislation that will ultimatel result in compulsory State meat-inspection under the supervision of th State Veterinarian or the State Board of Health, with the State Veterinarian as its executive officer. At present the law should not be mandator but should simply enable cities, towns, or townships to regulate their loca affairs through their local boards, subject to certain restrictions of th State board. There ought also to be some scheme devised whereby vita animal statistics and statistics of country slaughter-houses not under inspection could be obtained and classified under this same authority. I a word, publicity and a general enlightenment of ourselves and the publi is the key to the adjustment of these problems. The municipal slaughte house combined with a system of insurance of clinically sound animal under the supervision of well-trained, honest, courteous, discreet inspecto will solve the problem and lead to the establishment of a system for th detection and prevention of most of our contagious diseases.

As we said before, there is nothing new or original in this report. W have in our small way gathered a few ideas from the various sources at ou command which may be termed sprigs of promise that, with a little mixture of technical ability and common-sense, may be engrafted upon th branches of the hardy old tree of existing conditions without any fear o injuring its vitality and with some hope of improving the quantity an quality of its fruit and the beauty of its foliage.

Respectfully submitted,
T. A. SHIPLEY,
J. MILLER,
H. M. GILLIAN,
Committee.

On motion, the report was received.

Dr. S. H. Kingery then presented an extemporaneous report on "Ravage of Strongylus Tetracanthus."

The report of Dr. E. G. Marten on "Urethral Calculus" was in hi absence read by the Secretary.[1]

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[1] See JOURNAL for April, 1902, p. 205.

The report of Dr. G. P. Statter on "A Cow Case" was in his absence read by the Secretary.[1]

In the absence of Dr. J. Thomsen his report on "Open Joint" was read by Dr. Scott.[2]

Dr. C. C. Lyford, of Minneapolis, Minn., was introduced, and spoke on the subject of the meeting of the Veterinary Medical Association, which takes place at Minneapolis in September next. He gave all graduated veterinarians a cordial invitation to attend the meeting, assist it by their presence, and receive its benefits. He said that arrangements had been made to entertain the members and visitors and their ladies, and that the ladies would be admitted to the banquet.

Dr. S. D. Brimhall, also of Minneapolis, Minn., was introduced, and after extending an invitation to the graduated veterinarians of Iowa to attend the sessions and social functions of the meeting of the American Veterinary Medical Association, next September, he gave a short talk on the veterinary sanitary laws of Minnesota. As Dr. Brimhall is veterinary officer of the State Board of Health of Minnesota, and is charged with the administration of the State veterinary laws, this talk from him was very much appreciated.

Dr. Kingery moved that a committee of three be appointed by the President for the purpose of furthering the interests of the meeting of the American Veterinary Medical Association, to be held at Minneapolis next September. Seconded, put to vote, and carried.

The President appointed the following committee; Dr. J. I. Gibson, Dr. John J. Repp, Dr. W. A. Heck.

In the absence of Dr. L. U. Shipley, his report on "Typhoid Fever in a Horse" was read by Dr. Gibson.[3]

In the absence of Dr. Wm. Drinkwater, his paper, "Parturition Cases," was read by the Secretary.[4]

On vote of the Association, Dr. C. C. Lyford and Dr. S. D. Brimhall were elected to honorary membership in the Association.

Dr. H. E. Talbot, Committee on Clinics, announced the operations for which he had arranged, and urged a full attendance.

Dr. C. E. Stewart moved to adjourn until 8 o'clock the following morning, to meet at Dr. Talbot's infirmary. Seconded, put to vote, and carried.

SECOND DAY—*February 12th.*

Morning Session. The forenoon was devoted to a clinic held at Dr. Talbot's infirmary. The operations were as follows:

Castration of double cryptorchid, by Dr. C. E. Stewart; castration of single cryptorchid, by Dr. P. Malcolm; median neurectomy for ringbone, by Dr. D. H. Miller and Dr. P. Malcolm; removal of tumor from sow's udder, by Dr. W. A. Heck; arytenoidectomy for roaring, by Dr. J. H. McNeall; peroneal tenotomy for stringhalt, by Dr. W. A. Heck and Dr. H. E. Talbot.

Dr. Talbot had charge of the clinic, and the arrangements were very satisfactory. The operations were well performed, and the clinic proved very interesting and instructive.

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[1] See JOURNAL for April, 1902, p. 207.

[2] Ibid., p. 208.

[3] Ibid., p. 210.

[4] Ibid., p. 211.

Afternoon Session. Dr. D. E. Baughman presented his paper on "Rabies."[1]

Dr. George M. Walrod read his paper on "Amputation of a Bull's Penis."[2]

Dr. P. Malcolm presented his paper on "Abortion in Cows."[3]

Dr. H. L. Stewart read his paper on "Cæsarean Section."[4]

Dr. S. T. Miller then presented his paper on "External Ulcerative Ano-vulvitis."[5] He said that the name had been suggested to him by Dr. Repp as a substitute for the term "infectious ulcer of the vulva," a name which had been applied to this disease, but did not seem appropriate.

In the temporary absence of Dr. H. E. Talbot from the convention hall, his paper on "The Trials of the Veterinary Examining Board"[6] was read by the Secretary.

Dr. Gibson moved that the Secretary be authorized to edit the proceedings of this meeting and to have them printed in the *American Veterinary Review* and THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES, if the editors could be induced to publish them, or to have them printed in pamphlet form if it could be done free of cost by means of advertisements; the Secretary to use his discretion in making choice between the two methods of publication and to receive the sum of twenty dollars for his services in this connection. Seconded, voted upon, and carried.

The Secretary moved that the next meeting be held at Cedar Rapids. Seconded, and after some discussion voted upon and carried.

On motion, it was decided to hold the next meeting between December 1, 1902, and March 1, 1903, the exact time to be decided upon by the President and Secretary.

The Committee on Resolutions then reported as follows:

MR. PRESIDENT AND MEMBERS: We your Committee on Resolutions beg leave to report as follows:

Resolved, That it is the sense of this Association that the State Legislature should at its present session be very generous in the matter of granting the appropriation asked for and so greatly needed for the use of the veterinary section of the Experiment Station at Ames, so that comprehensive investigation may be made in reference to the nature, prevention, and treatment of the many diseases of our domestic animals which are so imperfectly understood and which cause such extensive losses, with a view to the prevention of these losses; also, that the most liberal spirit should control the Legislature in granting the appropriations for the other branches of work in the Experiment Station and to the State College for support and buildings.

Resolved, That we believe that it is requisite for the proper advancement of the Division of Veterinary Medicine of Iowa State College that its management be put into the hands of a veterinarian; therefore, we would respectfully request the Board of Trustees of that institution to place a veterinarian in the position of dean of that division of the college.

Resolved, That this Association gives its hearty support and assistance in every way possible to the State Board of Veterinary Medical Examiners, in order that the best results may accrue to our profession now and in future years.

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[1] See JOURNAL for April, 1902, p. 214.

[2] See p. 302.

[3] See p. 280.

[4] See p. 283.

[5] See p. 285.

[6] See p. 287.

Resolved, That we consider the Bang method of suppression of tuberculosis of cattle to be the best method available, and that we commend it to the cattle breeders of the State.

Resolved, That this Association believes that there should be a complete revision of the laws of our State relating to veterinary sanitation and the powers and duties of the State Veterinarian and his assistants. Especially do we believe that all the laws in reference to sheep scab should be repealed and more effective laws enacted in their stead, putting the control of this disease into the hands of the State Veterinary Department and providing sufficient funds to carry on the work.

Resolved, That it is the opinion of this Association that Section 5012 of the code should be amended by striking out the following words, to wit: "knowingly" in the second and the third line, and "knowing the same to be" in the fifth line; and, further, that Section 5013 should be amended by striking out the following words, to wit: "knowingly" in the first line, "nasal gleet" in the second line, "button" in the third line, and "knowing the same to be" in the sixth line; and, further, that Section 5014 should be amended by striking out the following words, to wit: "nasal gleet" and "button" in the second line.

Resolved, That it is the sense of this Association that a competent veterinarian should be chosen by the Superintendent of the Horse Department of the State Fair to pass upon the soundness and freedom from hereditary unsoundness of all horses exhibited at our State Fair; be it further

Resolved, That a copy of this resolution be sent to the Secretary of the State Board of Agriculture and to the Superintendent of the Horse Department of the State Fair.

Resolved, That expert judging of horses, both as to soundness and individual excellence, be made a feature of our next clinic; and be it further

Resolved, That the Committee of Clinic be hereby requested to arrange for the presence for the above purpose of at least two classes of draft horses and two classes of road or carriage horses.

Resolved, That we express our strong appreciation of the earnest efforts of the late Dr. Rush Shippen Huidekoper in behalf of the veterinary profession in America as author, editor, teacher, and practitioner, and especially his efforts in the interest of army legislation; that by his death we have lost one of our most powerful supporters and coworkers, and that we extend to Mrs. Huidekoper our tenderest sympathy for her in her great personal loss.

Resolved, That we extend our thanks to the management of the Savery Hotel for placing at our disposal a convention hall free of charge, and to the newspapers of Des Moines for their courteous treatment.

GEORGE A. SCOTT,
J. I. GIBSON,
F. J. NEIMAN,
Committee.

The report of the Committee on Resolutions was, on motion, unanimously adopted.

The election of officers resulted as follows:

President: Dr. J. I. Gibson, Denison.

First Vice-President: Dr. W. A. Heck, Maquoketa.

Second Vice-President: Dr. T. A. Shipley, Cedar Rapids.

Secretary and Treasurer: Dr. John J. Repp, Ames.

Board of Censors: Dr. S. K. Hazlet, Oelwein; Dr. George A. Scott, Independence; Dr. W. H. Austin, Newton.

The appointment of committees was deferred.

Dr. W. A. Heck offered special resolutions, as follows:

Resolved, That inasmuch as the offering of unsound stallions to the public for breeding purposes is a menace to the best interests of the horse breeders of the State, we recommend the enactment by the Legislature at its present session of a law requiring the licensing of all stallions used for public service as sires.

Resolved, That we extend to Dr. H. E. Talbot a vote of thanks for providing such an extensive clinic for our benefit, and that the usual appropriation be made to defray the expense in connection therewith.

On motion, these resolutions were adopted.

The Committee on Resolution on Dr. John E. Brown reported the following resolution:

Resolved, That we extend to Dr. John E. Brown, our former Secretary, our hearty good-will, an expression of our high appreciation of his generous efforts through so many years in behalf of our Association, and our best wishes for the health, happiness, and success of himself and his family in their new Southern home.

J. I. Gibson,
George A. Scott,
John J. Repp,
Committee.

On motion, it was unanimously adopted.

The Secretary moved that the President appoint a Committee on Legislation. Seconded, voted upon, and carried.

The Committee on Disease and Treatment submitted a report as follows:

Report of Committee on Disease and Treatment.

My report on disease and treatment must be brief. The members of the Association have been somewhat negligent in reporting for this committee. Abundant material could be offered if members would take notes on cases, observing the new phases of disease, and its prevention and treatment.

In this State the usual diseases have appeared. Tuberculosis is on the increase. It has been noticed, however, that the most intelligent, active, and successful farmers are now beginning to view tuberculin as a valuable aid to diagnosis. They take more kindly to the tuberculin test, and feel that it is the only method by which a check can be put upon the course of this scourge. Actinomycosis is prevalent. Treatment with potassium iodide in the early stages is most gratifying, and in the later stages excision of growths and bone if necessary is of much benefit, and cures a large majority of cases. Bichromate of potassium in 20 per cent. solution has proved valuable in swabbing out abscess cavities. Impaction of the third stomach and cornstalk disease are frequent and the fatality great. The symptoms of these diseases appear to me very similar at times, and treatment must be entirely preventive. Glanders and farcy are met with occasionally. Malignant catarrh of the ox has been epizoötic throughout the northeastern portion of the State, but was of a rather mild type and readily amenable to ordinary remedies.

In two herds of cattle in Floyd County afflicted with contagious abortion I applied treatment which consisted of the daily application of antiseptic washes to the external genitals, rump, and quarters; thorough disinfection of the stable and discharges; careful removal of the membranes when retained, and irrigation of the uterus. In addition, 4 drachms of a 3 per cent. solution of carbolic acid were given subcutaneously once daily for the first week; then the dose was gradually decreased until at the expiration of a month it was discontinued. The disinfection was kept up a month longer. After that time all signs of abortion had disappeared completely from the two herds.

Dr. J. G. Parslow writes that in his territory, during May and June, epizoötic cellulitis prevailed extensively in severe form, but caused but little loss of life.

Blackleg caused considerable anxiety in sections, and is on the increase, owing to lack of confidence in vaccination on the part of the farmers. Cornstalk disease has caused considerable loss. It appeared from two to four weeks after the cattle were turned into the fields. No remedy seems of any avail. Dr. P. O. Koto reports cornstalk disease in his part of the State. Dr. H. E. Talbot writes that cornstalk disease has been very prevalent and very fatal. He has also had about 200 cases of what is similar to foot-and-mouth disease. The disease has all the symptoms of contagious aphtha, and is as much like what we have been taught to call foot-and-mouth disease as a twin brother, and may be called that for want of a better name.

J. H. McLeod,
Chairman.

On motion, the Association went into secret session.

Dr. Heck moved that the Secretary be instructed to invite only graduated veterinarians to our next meeting. Seconded, voted upon, and carried.

On motion, the Association adjourned.

The following members were in attendance at the meeting: G. Lames, Dysart; C. A. Clinton, Havelock; George M. Walrod, Storm Lake; C. E. Stewart, Chariton; John J. Repp, Ames; P. O. Koto, Forest City; W. A. Heck, Maquoketa; P. Malcolm, New Hampton; A. B. Wilmoth, Des Moines; A. A. Adamson, Newton; W. H. Austin, Newton; John H. McNeall, Ames; S. H. Kingery, Creston; D. E. Baughman, Fort Dodge; M. Y. Schaffer, Des Moines; S. H. Bauman, Birmingham; F. J. Neiman, Marshalltown; S. T. Miller, Shelby; S. K. Hazlet, Oelwein; D. H. Miller, Harlan; H. C. Simpson, Denison; H. E. Talbot, Des Moines; H. L. Stewart, Lacona; Joseph Biggs, Union; T. A. Shipley, Cedar Rapids; J. I. Gibson, Denison; J. A. Campbell, Des Moines; George A. Scott, Independence; J. R. Sanders, Corydon; N. A. Kippen, Riceville; J. S. Potter, Iowa City; G. L. Buffington, Baxter, and C. W. Stevens, Knoxville.

The following visitors were in attendance: Hon. W. M. Greeley, Ames; Drs. C. C. Lyford, Minneapolis; S. D. Brimhall, Minneapolis, Minnesota; Thomas D. Hulme, Commerce; Carl W. Gay, Ames; H. B. Treman, Sioux City; W. L. Evers, Iowa Falls; Messrs. C. E. Harlan, Des Moines; W. J. Wallace, Des Moines; C. G. Martin, Des Moines; A. C. Lookingbill, Yale; Ira W. Edwards, Redfield; P. C. Price, Shell Rock; F. A. Blake, Harper;

Zan Cotter, Chicago, Ill; A. W. Russell, Meservey; A. F. Baldwin, Ame
Walter E. Miller, Ames; Albert Stigers, Stuart; J. C. Boyd, Kansas Cit
R. H. Stevenson, Sigourney; Wm. R. Simpson, Elliott; H. M. Stevens
Perry; H. C. Dillman, Oakley; J. E. Harley, Chicago; J. N. Cozze
Col.; S. T. Bodell, Winthrop; W. L. Turner, New Hampton.

Respectfully submitted,
JOHN J. REPP,
Secretary

PERSONALS.

Dr. E. M. Ranck, of the Mulford Company Bacteriological La
oratories, Philadelphia, Pa., made a trip through the South
March.

Governor A. B. Cummins, of Iowa, appointed Dr. P. O. Koto,
Forest City, Iowa, State Veterinarian. Dr. Koto is a graduate of t
Chicago Veterinary College, and has been in practice a number
years in the "Hawk Eye State," and was President of the Sta
Veterinary Medical Association last year. He is also engaged
the drug business. Dr. Koto succeeds Dr. J. I. Gibson, of Deniso

Dr. C. T. Goentner, of Bryn Mawr, Pa., has recovered from h
recent serious illness sufficient to be at his post of duty in practice

Dr. Wm. Dougherty, of Baltimore, Md., rarely ever misses h
annual pilgrimage to New York at the close of the session of h
alma mater.

Dr. Leonard Pearson, of Philadelphia, spent a week among t
breeding farms of Illinois as a further means of enlightening t
breeders of Pennsylvania on the production of better types of horse

Dr. H. A. Dewey, of Indianapolis, Ind., has just fallen heir
four thousand dollars, left him by a lady whose life he was instr
mental in saving a number of years ago.

Dr. Alex. Glass, of Philadelphia, Pa., hailed with joy the war
days and hied himself away to the waters of the Delaware to grati
a long winter's dream of the joys of yachting.

Dr. W. E. A. Wyman, formerly of Milwaukee, Wis., has su
ceeded to the practice of Dr. J. S. Grant, of Portland, Mich.

Dr. W. Horace Hoskins, of Philadelphia, Pa., was a visitor t
the courts of York county in April, directing the prosecution
Dr. C. E. Hyle, charged with violation of the State laws regulati
the practice of veterinary science.

Dr. M. E. Knowles, of Helena, Montana, spent a day in Kansas City in March, on his way to Fort Worth, where he attended a Cattleman's Convention. The Doctor's attendance was in the interest of sanitary control of scab in both cattle and sheep.

Joseph J. Kinyoun, M.D., Ph.D., late Surgeon of the Marine Hospital Service and Director of the Hygienic Laboratory at Washington, has assumed the directorship of the biological laboratories of the H. K. Mulford Company, at Glenolden, Pa.

Dr. Kinyoun has not only served the Government by being delegated special representative to the International Congresses, by being late Surgeon of the United States Marine Hospital Service and Director of the Hygienic Laboratory at Washington, but also by representing the government on several occasions in the investigation of the progress of serum organotherapy and infectious diseases at home and abroad, in Paris and Berlin particularly, Europe generally, and in Japan.

Of necessity his work carried him to and in contact with Professors Koch, Roux, Behring and Pasteur, under whom he has received special instructions and enjoyed the advantages of the study of bacteriology and allied subjects; this, together with the natural tendency of his talents, that of original bacteriological research, peculiarly fits him for the office he now assumes.

Dr. J. C. Foelker, of Allentown, Pa., spent a day in Philadelphia in March. An hour at the JOURNAL office made up a part of his stay.

President Winchester, of the A. V. M. A., was at the annual banquet of the New York American Veterinary College on April 1st, at the Hotel Marlborough.

Dr. R. P. Lyman, of Hartford, Conn., was a visitor to the JOURNAL office in April.

Dr. J. W. Scheibler, of Memphis, Tenn., has a lawsuit on his hands relative to the destruction of some tuberculous cows.

Dr. Edward Martin, of the Van Croft Stock Farm, of Wellsburg, West Virginia, was very much interested in the Pittsburg Kennel Club Show.

The Mechano Neural Therapy College and Hospital, at Trenton, under the control and direction of Drs. Harry Walter and Arnold, have closed their doors.

The many friends of Dr. J. C. McNeil, of Pittsburg, will be glad to learn of his convalescence from a severe attack of typhoid fever.

State Veterinarian Pearson was a visitor to Hazleton, investigating an alleged outbreak of glanders among some mules brought fron Missouri to one of the mines.

Mrs. H. D. Gill, of New York City, added another laurel to th wreath of victories won by her famous horse "Jack," at Sea Cliff L. I., in a free-for-all race.

Dr. Ray J. Stanclift, of the Eighth United States Cavalry, ha been transferred from Camp R. S. Mackenzie, Cuba, to For Reno, Oklahoma, I. T.

Dr. A. T. Sellers, of Camden, N. J., is a fancier of thorough bred fowls and a constant reader of the poultry and fancier journals.

Dr. E. H. Brown, late Veterinary Surgeon of the United State Army, is now located in general practice at Boise, Idaho. Veterinary dentist W. G. M. Allen is associated with him. The jointly conduct a veterinary hospital and centre for mining an prospecting outfits.

VETERINARY REGISTER.

[See Editorial, Journal of Comparative Medicine and Veterinary Archives, July, 1901, page 438.]

[In the following list the names and data printed without comment are thos furnished to us by postal card with the signature of the individual.

Those with an asterisk [*] are those to whom we have sent, by United State mail, an envelope with prepaid postage and a request for return if not delivere in ten days; as the envelopes have not been returned, we presume that the lette has been delivered, that the individual in question exists, but that he has neglecte to return the enclosed postal card with the information requested.—Ed. Journal.]

PENNSYLVANIA.

(Continued from page 268.)

Name.	*Street,*	*Town.*	*College, Graduated.*	*County, Registere*
Stephens, J.	……	Nicholson	*	……
Sterling, Cyrus C.	……	Summer Hill Twp.	*	……
Sterner, C. D.	……	Brodbecks	*	……
Stevens, A. E.	……	Keeneyville	*	……
Stevens, Elwood	2d st Pike near Borbeck	Fox Chase	*	……
Stevens, N. O.	……	Girard	*	……
Stevenson, J. F.	……	Greenville	*	……
Stewart, Archib'd G.	……	Conoquenessing Twp.	*	……
Stickles, Samuel	……	English Centre	*	……
Stockdill, P. F.	……	Rural Valley	*	……
Stoever, J. F.	……	Fredericksb'g	*	……
Storm, Wm. J.	1825 S. 18th st	Philadelphia	*	……
Stouffer, David C.	……	Hopewell	*	……
Stroughton, O. P.	……	Scott Twp.	*	……

Name.	*Street.*	*Town.*	*College, Graduated.*	*County, Registered.*
Stover, John B.	......	Shady Grove	Ontario Vet., 1898	Franklin, 1898
Stover, John F.	......	Fredericksb'g	*	......
Stover, Mahlon G.	......	Nazareth	*	......
Strang, Frank	......	Westfield	*	......
Strange, Wm.	......	Pittston	*	......
Strayer, Henry	......	Springfield Twp.	*	......
Strayer, Wm.	655 S. Duke st	Lancaster	*	......
Strickler, Chas. M.	......	Greencastle	*	......
Strouse, Joseph	......	Keller's Church	*	......
Sturge, E.	420 Spruce st	Scranton	*	......
Sullivan, Dennis O.	......	Devon	......	Chester, 1889
Summers, George L.	......	Duffield	*	......
Summy, H. B.	......	Manheim	*	......
Super, Daniel H.	......	Warrensville	Ontario Vet., 1895	Lycoming, 1899
Sutton, Bruce S.	130 Edwards ct	Scranton	......	Lackawanna, 1889
Swank, George K.	Centre st	E. Mauch C'k	V. D. U. Pa., 1894	Carbon, 1894
Swartz, Henry	......	New Oxford	*	......
Swartz, Jacob N.	......	Redland	*	......
Swartz, Levi B.	......	Wismer	*	......
Sweeley, D. W.	......	Jersey Shore	*	......
Sweeley, Elmer E.	......	Jersey Shore	*	......
Sweet, John B.	......	Buell	*	......
Swift, S. J.	Chestnut st	Franklin	National Vet., 1895	Venango, 1895
Swords, Leonard	......	W. Brownsville	*	......
Sypher, Henry J.	......	Milton	*	......
Tallman, B. H.	129 W. Church	Williamsport	V. D. U. Pa., 1900	Lycoming, 1900
Taylor, F.	......	Sewickley	*	......
Taylor, Wm.	22d & Cambria	Philadelphia	*	......
Tebay, Milton	......	Centre Twp.	*	......
Temple, S. W.	......	Warsaw	*	......
Terry, Edward E.	Welsh road	Holmesburg	V. D. U. Pa., 1898	Bucks, 1898
Terry, Harry C.	Bellone av	Langhorne	American Vet., 1894	Bucks, 1894
Thomas, John	......	Greensburg	*	......
Thomas, Thomas	......	Troxelville	*	......
Thompson, Wm. C.	......	Berwyn	*	......
Thorpe, J. W.	......	Sugar Grove	*	......
Thudicum, C. L.	......	Wayne	*	......
Tilyon, E. D.	......	Russell	*	......
Timberman, J. H.	86 Union st	Wilkesbarre	*	......
Tintaman, John Z.	335 E. Girard av	Philadelphia	V. D. U. Pa., 1888	Philadelphia, 1889
Tippery, Samuel	......	Foxburg	*	......
Tomlinson, W. J.	23 State st	Williamsport	*	......
Totten, J. M.	......	Mechanicsburg	*	......
Tower, E. E.	......	Montrose	National Vet., 1894	Susquehanna, 1894
Trego, Daniel	......	Rockville	*	......
Treichler, Albert J.	......	Collegeville	*	......
Tressler, Henry J.	......	Bellefonte	*	......
Trexler, J. P.	......	Shamokin Dam	*	......
Trone, Hezekiah	......	Hanover	*	......
Troutman, Elias	......	Rehrersburg	*	......
Tully, Edgar M.	1945 Franklin	Philadelphia	*	......
Turnbull, W. A.	815 Ligonier av	Latrobe	*	......
Turner, Henry W.	......	Lahaska	*	......
Uibel, C. B.	......	Bowmansville	*	......
Ulsh, H. M.	......	McClure	*	......
Ulsh, H. S.	......	Lewistown	*	......
Underhill, Benj. M.	41 E. Front st	Media	V. D. U. Pa., 1895	Philadelphia, 1895
Urberger, Simon	......	Swatara Twp.	*	......
Van Cise, George	......	Sharon Center	*	......
Vandegrift, John F.	State st	Newtown	V. D. U. Pa., 1888	Bucks, 1889
Vanderbilt, Peter	525 W. 3d st	Williamsport	*	......
Van Dyke, E. G.	......	E. Canton	*	......
Van Horn, G. L.	......	North Point	*	......
Van Horn, J. W.	......	Montoursville	*	......
Varnas, Joseph	......	E. Salem	*	......
Varnum, Enoch	......	North Hope	*	......

Name.	*Street.*	*Town.*	*College, Graduated.*	*County, Registered*
Vasey, J Price	1927 N. Camac	Philadelphia	……	Philadelphia, 18
Vetter, John J.	Cherry av near Liberty av	Pittsburg	*	……
Vetter, Stephen A.	……	Pittsburg	*	……
Vogel, Peter	……	Berlin	*	……
Von Lang, Otto	39th & Hav'f'd	Philadelphia	*	……
Waldner, C. J.	Main st	Hellertown	N. Y. C. V. S., 1889	North'pton, 1889
Waldron, R. M.	111 Talbott av	Greensburg	Ontario Vet., 1887	Westmorel'd, 19
Waldron, Thos. M.	9 E. Peters st	Uniontown	*	……
Wall, Miles	……	Curwensville	*	……
Wallace, S. J.	605 Water st	Warren	*	……
Wallace, T. C.	205 E. 2d st	Warren	*	……
Walter, Charles R.	……	Conyngham	*	……
Wareham, Henry	……	Carlisle	*	……
Warmcastle, Chas. A.	……	Pittsburg	*	……
Warren, Wm. H.	……	Quarryville	*	……
Washburn, Silas S.	……	Smethport	*	……
Wasser, Benj. H.	……	Applebachsville	*	……
Wasser, Charles	……	Durham	*	……
Watkins, Frank	……	Philadelphia	*	……
Waugh, David	1 Robinson st cor 5th av	Pittsburg	Indiana Vet., 1897	Washington, 18
Waugh, James A.	1 Robinson st cor 5th av	Pittsburg	Ontario Vet., 1882	Allegheny, 1890
Waugh, Wm. J.	111 W. Wheel'g	Washington	Ontario Vet., 1882	Washington, 19
Weand, E. W.	Main av & Lee st	Macungie	*	……
Weamer, S. C.	……	Marion Centre	*	……
Weaver, George	……	Lone Pine	*	……
Weaver, Samuel W.	……	East Earl	*	……
Weaver, V. B.	Broadway	Bangor	……	Lehigh, 1878
Weber, S. E	……	Lancaster	Ontario Vet., 1884	Lancaster
Webster, Richard G.	7th & Kerlin sts	Chester	V. D. U. Pa., 1887	Delaware
Wehr, G. A.	……	Denver	*	……
Weicksel, H. J. S.	800 N. Rock st	Shamokin	V. D. U. Pa., 1894	Northumb'd, 1
Weidenhammer, A. G.	……	Kutztown	*	……
Weiger, John	……	Allen Twp.	*	……
Weikel, Lemuel	……	New Columbia	*	……
Weinberg, H. H.	1202 N. Fr'klin	Philadelphia	*	……
Weir, James B.	121 Market st	Kittanning	Gr'd Rapids Vet., 1900	Indiana, 1891
Weir, James B.	……	Smicksburg	*	……
Weir, Samuel D.	……	Fleetwood	*	……
Well, J. B.	……	Terre Hill	*	……
Weller, J. O.	……	Meyersdale	*	……
Welliver, E. F.	……	Shamokin	*	……
Welliver, G. H.	……	Bloomsburg	Ontario Vet., 1898	Columbia, 1894
Wenger, Z. B.	……	Akron	*	……
Wentz, W. T. S.	……	Philadelphia	*	… ..
Werntz, W. B.	4581 Lan'ter av	Philadelphia	*	……
Wetzel, F. F.	… ..	Millheim	*	……
Wheeler, J. J.	……	Lander	*	……
Whitaker, C. J.	……	Girard	*	……
Whitcomb, J.	……	Centre Square	*	……
White, David J.	……	N. P. I., Wash. Co.	*	……
White, James S.	……	Millerstown	*	……
White, Thomas	1210 S. 28th st	Philadelphia	V. D. U. Pa., 1900	……
Whiteside, John D.	Main ab. State	Parkesburg	*	……
Whiting, F. L.	……	Harmonsburg	*	……
Whiting, I. N.	……	Mansfield	*	……
Whitling, W. H.	……	Knox	*	……
Widener, E. W.	……	Pittston	*	……
Widmer, John	S. Main st	Carbondale	……	Lackawanna, Monroe, 1
Widner, Edward W.	……	Pittston	*	……
Widner, E. W.	.. …	Stroudsburg	*	……
Wieand, V. H.	118 N. 6th st	Allentown	*	……
Wier, A. W.	Clinton st	Greenville	Ohio Vet. Med., 1895	Mercer

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SOME THOUGHTS ON MUNICIPAL MILK-INSPECTION.[1]

BY J. M. CARTER, V.M.D.,
PHILADELPHIA.

FROM my actual and practical experience in the milk business in almost all its various phases, and from my observations as a veterinarian practising in one of the first dairy districts of the country, I have had an opportunity to observe and know pretty nearly the actual character of the milk consumed by the people of a large city like this; and I think I can safely say that if the consumer were to see the cow that produced the milk used on his table and follow that milk from the cow to the table he would use it very sparingly on his oatmeal and in his coffee, and, least of all, give it to his baby or sick child to drink. Of course, there are some well-equipped dairies and careful dairymen who are producing some wholesome milk, but I am speaking of the great majority of dairies as I have seen them. We all know how readily almost all germs grow and develop in milk, and how easily it becomes infected, and being consumed in the uncooked or raw state it must be the medium by which the germs of many infectious and contagious diseases are taken into the system. The history of many epidemics of typhoid fever, scarlet fever, and diphtheria, to say nothing of tuberculosis, can be traced to this source. It is hardly necessary for me to enumerate to you the places and modes in which milk becomes contaminated. It seems to me everything is dirty in connection with milk: the stable, so often dark and damp and poorly ventilated, with little or no drainage—veritable breeding-places for disease; the cows, packed as close as possible to economize room, and stables shut up tight in winter time, to keep each other warm, and in the morning the air is so heavy with ammonia and offensive gases you can hardly breathe. The drinking-water for the cows often comes from barn wells into which drain the barnyard or out-buildings.

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[1] Presented at the annual meeting of the Pennsylvania State Veterinary Medical Association, March 4 and 5, 1902.

At milking times the milk cans are often brought into the stables or entry, and remain there until the milking is finished, in the atmosphere laden with dust and exhalations from the cows; and, in fact, I have often seen the milk cans remain in the stable all night in the winter time, to keep the milk from freezing.

The cows are seldom or never cleaned, and are covered with loose hair and exfoliating epithelium, and their quarters and bellies are plastered with dried or wet effete matter, which is constantly falling into the bucket or being brushed off by the milker, generally with dirty hands and dirty clothes, often wetting the teat with milk or froth, which drips into the bucket; or I have seen the filthy habit of spitting on the hands to wet the teats; in fact, very seldom is any regard whatever paid to cleanliness or hygiene. I have often seen thick milk, stringy milk, bloody milk, all dumped into a can together; and not even when the cow puts her foot in the bucket is the milk seldom rejected.

The buckets and strainers are but little improvement on the other procedures, especially the strainers, which are generally in bad repair, only catching the larger portions of foreign matter which have dropped in, allowing the bulk of the dirt to pass through and settle to the bottom of the can. On arriving in the city in the not overly clean cans the treatment is somewhat better, but even here milk shipped in bulk is subjected to much exposure on the railroad platform. It is often dumped around from one can to another, and sampled and tasted before taking home. Many milk-houses are well equipped, but there are many very badly, and often next to the kitchen or living room, with the doors constantly open.

The manner of handling milk on wagons is especially bad, the cans being opened at every stop and exposed to the dust of the streets and alleys, which is made up largely of dried horse manure and sweepings from houses. Milk in bulk leaves many temptations to the milkman. If a little short of supply, how easy it is to fill up the can with skimmed milk or possibly water, and in the summer time preservatives, which are found in nearly all milk-houses, and in the winter coloring-matter.

One who has never lived in the country or been associated with the dairy business does not know these things, and the majority of consumers of milk look only at the milk as it appears before them, and think only of the Jersey cow, the green fields, the buxom dairymaid, and the old spring-house, with its cool, crystal water. These are the thoughts that present themselves to the ordinary city resident, whose knowledge of the dairy is only his recollections of boyhood days or a week's stay in the country in summer time. Such people only judge of the quality of milk by its color and the amount of cream it raises.

Possibly a great deal of this milk, even if teeming with germs from filth and exposure, is drunk and consumed, and does no apparent harm; but the manner and carelessness with which the bulk of the milk is handled certainly leaves many ways by which the milk may become contaminated with disease germs and bring serious trouble, far greater, I believe, than is as yet known. We have already some astounding reports from the few observers who have made a study of the spread of diseases through contaminated milk, but we can never know how far-reaching or how great the loss of health and life has been through our pernicious milk-supply.

Dr. Hart and Dr. Freeman, of New York, have collected statistics of thousands of cases of diphtheria, typhoid fever, and scarlet fever traced directly to the milk-supply, the milk becoming infected from the cow producing it or during its handling from the cow to the consumer. Cholera, dysentery, acute milk poisoning, and cholera infantum of children have been traced to milk by the few who have traced the source of these diseases.

Dr. Freeman has classified diseases conveyed by milk to man into three classes:

First, those in which the disease germs are introduced into the milk from the body of the diseased cow; second, those in which the germs are introduced into the milk from some other source, either during or after milking; third, those diseases caused by milk which contains poisonous agents developed by bacterial growth.

First. Tuberculosis: We shall consider the diseases under each class separately. By far the most important disease under the first class is tuberculosis. Although disputed by some, the vast amount of evidence and cases recorded — both circumstantial and positive accidental cases — seem to prove beyond a doubt that innumerable cases of tuberculosis in man have been caused directly by consuming milk from tuberculous cows. It is necessary for me to cite these cases here; they are too familiar you all.

Second. Anthrax: A few observations of infection by m from anthrax cows have been made where the disease is m prevalent. In this country, where the disease is comparativ rare and generally of so severe a form and pronounced sympto the milk is seldom used—at least, I have no records of such.

Third. Foot-and-mouth-disease; also comparatively unkno in this country. In England the disease has been caused in m directly by consuming milk from cows suffering from the disea

Acute enteritis: Although the number of cases is sm there does seem to be direct evidence in two or three cases wh the disease was traced directly to a cow suffering from disease a transmitting the same to all those drinking her milk. If m observations were made doubtless more cases could be traced the same source. Under this class may also be considered d turbances often seen in young children, as colic, cramps, vom ing, and diarrhœa. These disturbances are often due to chan in the milk when a cow is suffering from garget or mammitis, a even if the ropy, stringy, often pus-like milk from the affec quarter of the udder is discarded, the remainder of the milk found to be acid, and has often been known to cause these distu ances when fed to infants. Similar results have been noted feeding infants on milk from cows unduly excited from any cau especially at rutting period, when the cow is allowed to race af other cows and often create much excitement in the herd. I my belief that much of the digestive disturbances of infants is to improper milk, and that the cow furnishing the milk for baby should have just as good care and food as a mother suckli her baby.

Certain poisonous plants when eaten by the cow may cause apparent disturbance to the cow, but transmit the poisonous pr ciple to the milk, which affects infants in different ways, depe ing upon the character of the plant eaten. The use of milk soon after calving—before the milk is entirely free from colostr —causes colicky pains, vomiting, and diarrhœa in infan Every farmer knows that if you put a six-weeks-old calf or fresh cow it will cause scours, and yet he does not hesitate to du her milk into the can after about two or three milkings, wher takes three or four days at least to free the milk from colostru

Diseases of the second class, or when the pathogenic organi enters the milk outside the cow: In all epidemics due to milk there are certain characteristics upon which the source of the epidemic is determined, as seldom or never has the germ of the disease been found in the specimen of milk obtained. The cases appear suddenly, there are many new cases each day, and the subsidence is equally marked when the milk-supply is stopped. The houses invaded are widely distributed, and are not restricted to a particular part of the town. The houses of the rich are more apt to be affected than the houses of the poor, as the rich use more milk and often have a special water-supply. The milk drinkers of the family are the ones mostly affected, and the disease is largely among children. In nearly all of the recorded epidemics a patient suffering with the disease has been found at the source in the milk-supply. The most frequent of these epidemics is typhoid fever, of which Dr. Hart, of New York, gives statistics of fifty epidemics, with 3500 cases, and Dr. Freeman gives statistics of fifty-three epidemics and 3226 cases. In my vicinity there have been three epidemics of typhoid fever—one with 50 cases, another 260 cases, and another nearly 100 cases. In the two former, occurring at Elkton, the evidence seems perfect, and was traced directly to the farmer serving the milk, he having typhoid fever in his family and the fever being confined largely to his patrons. In the latter case, at my own home, although there was typhoid fever on the farm serving the milk to the town, the cases did not confine themselves to his patrons, but existed among the other milkman's patrons furnishing the town as well. As it is known that the milkmen often bought milk from each other, there was some doubt as to the source of the trouble.

Of scarlet fever, forty-one epidemics, with 2393 cases, have been reported. In nearly all of these cases, as in typhoid, a patient suffering with the disease was found at the source of the milk-supply.

Of diphtheria, Dr. Freeman reported eighteen epidemics, with 1000 cases. Not so large a number of the epidemics of diphtheria could be traced to a case of diphtheria on the farm supplying the milk; but with diphtheria in man the attack may be so light as to have been overlooked, or possibly may have been of feline origin, as cats are known to suffer with a throat trouble closely resembling diphtheria, and wheezy old cats are very common around barns, often lapping milk from the buckets and cans. An epidemic of diphtheria has recently occurred in Wayne, in which nearly every case was traced directly to the dairyman's son, who was suffering with the disease.

Cholera epidemics have been traced, through the milk-supply to the farm furnishing the milk, either from a case of cholera occurring on the premises or in the water used to dilute the milk.

In those cases of typhoid fever and scarlet fever where no case existed on the farm it may have been the water-supply on the farm which was polluted, as the barn wells are often drained from barnyards or out-buildings, and it is a common custom for farmers to rinse the buckets and cans in this water and fill the cans with the rinsings.

Disease caused by milk which contains poisonous agents developed by bacterial growth: A few cases of this kind have been recorded in which a large number of people were affected, and on examination the tyrotoxicon of Dr. Vaughn was found in the milk. This poisonous ptomaine is the result of the growth of a certain bacteria which is commonly found in cheese.

In summing up the evidence of the records just given, we may conclude that infection from milk is well established in typhoid fever, scarlet fever, diphtheria, tuberculosis, cholera, foot-and-mouth disease, acute enteritis, and possibly anthrax. Acute milk poisoning in infants, resembling cholera infantum, is frequent, but is seldom traced to the proper source.

Acute cases of poisoning of adults by milk containing tyrotoxicon have occurred. All this is known of the recorded epidemics that have occurred, while many cases are never recorded, and many more are never traced to their source. I believe that all this sickness and death are directly due to contaminated milk, and are to a great extent preventable by proper legislation concerning the inspection of dairies and the handling of the milk which is furnished to our cities and towns.

A study of these epidemics and the evils which have arisen and are arising every day teaches us:

1. That wherever a communicable infectious disease is reported a rigid and careful inquiry into the source of the milk-supply should be made.

2. Proper legislation should be made concerning the inspection of dairies and the handling of milk.

3. In each city or town there should be a special committee or bureau to look after the milk-supply; also to enforce the laws and to have charge of the inspection, and to whom all outbreaks or deaths from contagious diseases should be reported, that the farm and dairy could be examined in search of the cause of the trouble.

4. That each farmer desiring to ship milk for consumption

should be compelled to take out a license for the same, and that his dairy, stabling, water-supply, and dairy apparatus should be in a proper condition to produce wholesome milk.

5. There should be sufficient inspectors appointed and paid by the town to which the milk is furnished to inspect each dairy at least every three months, to see that the cows are healthy and that the rules of the bureau are being enforced.

6. That the methods of handling milk in bulk be abolished; that all milk used for food purposes to be consumed raw to be bottled and sealed on the farm, and that seal be not broken until it reaches the consumer, thus avoiding much exposure and any tampering or contamination after leaving the farm; also that each bottle be stamped with the day and date and the name of the shipper.

7. That all whole milk shipped in bulk—or skimmed milk, which is largely used for cooking—if used raw should be heated to at least 155°. The skimmed milk, which largely comes from creameries, is certainly unsafe to feed to a child, as it is submitted to any amount of exposure, and preservatives are used very freely in it. We have all seen too many cases of tuberculosis among calves fed on creamery skimmed milk not to condemn it for infant feeding.

How a people in this enlightened age can go on, year after year, buying and consuming a product produced and marketed with such negligence as regards purity, cleanliness, and healthfulness seems like a relic of barbarism. I believe it is our duty to mankind as veterinarians, and knowing this evil, to expose these facts on all occasions and in every way, and to use every effort to establish the milk-supply of our cities in general on a proper basis; and if we succeed in this it will be one of the biggest and greatest works done to our credit.

SNAKES, SNAKE VENOMS, AND ANTIVENENES.[1]

BY E. M. RANCK, V.M.D.,
PHILADELPHIA, PA.

THE number of known species of snakes has been given as 1500 by some authorities, and as 1800 by others. The limit of their distribution seems to be the seventieth parallel, north latitude in

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[1] Presented before the American Veterinary Medical Association.

Europe; the fifty-fourth in British Columbia, and the fortieth parallel, south latitude in the southern hemisphere. The number of species seems to be small in temperate zones, but increases toward the tropics, in which zones they are very abundant. Generally speaking, they may be, according to their habits, designated as: first, "burrowing snakes;" second, ground snakes; third, tree snakes; fourth, fresh water snakes; and fifth, sea snakes. The majority of snakes are active during the day, their energy increasing with the increasing temperature of the air; while some delight in the moist, sweltering heat of the tropical vegetation; others expose themselves to the fiercest rays of the mid-day sun. Those which inhabit temperate latitudes hibernate.

Snakes are the most stationary of all vertebrates. As long as a locality affords them a sufficiency of food and some shelter, to which they can readily retreat, they have no inducement to change it. Their organs of locomotion are the ribs, the number of which is very great, nearly corresponding to that of the vertebræ of the trunk. The locomotion is accomplished in the following manner: When a part of the body has found some projection of the ground which affords it a support, the ribs are drawn more closely together on alternate sides, thereby producing alternate bends of the body. The hinder portion of the body being drawn after, some part of it finds another support on the rough ground or projection, and the anterior bends being stretched in a straight line the front part of the body is propelled in consequence. The numerous ventral shields also add to this phenomena, and one ventral shield corresponds to one pair of ribs. They strike in much the same way, *i. e.*, by a dart of the anterior portion of the body which had been retracted in several bends. Snakes are oviparous and ovoviviparous; they deposit from ten to eighty eggs of an ellipsoid shape, covered with a soft, leathery shell in places where they are exposed to and hatched by moist heat. The parents pay no further attention to them, except the python, which incubate their eggs by coiling their body over them. In some families, as many fresh water snakes, the sea snakes, the vipers and crotalids, the eggs are retained in the oviduct until the embryo is fully developed. These snakes bring forth living young and are called ovoviviparous.

Since the snakes of North America interest us most, and especially the poisonous species, I will speak only of these. They comprise the crotalids, or "pit" vipers, which include the rattlesnake, copperhead, water moccason, and the elaps or coral snakes. All other snakes which abound in this country are non-poisonous.

The elaps or harlequin is a beautiful snake, having rings of red, black and yellow, and is so rare that I will omit this species in describing the details of snakes. Since we have so many "pit" vipers in this country, and in fact nearly all fatalities from snake bites can be traced to these, I will go into the details of some of the characteristics of this species.

The agkistrodon contortrix or copperhead is well-known to you all, and since it is so closely related anatomically to the rattler, I will pass this by, saying that since it is as a rule such a small snake, the bite is not generally fatal, owing to the fact that it secretes small amounts of venom. The agkistrodon piscivorus or water moccason, which is also related closely to the rattler, is larger and more dangerous and also deserves special mention, but the venom differs little from that of the rattlesnake, and so we will pass to the commonest family of the "pit" vipers, namely, the rattlesnake.

Perhaps a few of you may not know the meaning of the "pit," and this organ has been the topic of much discussion to many zoölogists. I will refer to what an authority on the subject says in reference to this peculiar organ. I refer to Lenord Stejnegar,[1] who says: "The name refers to the deep pit or hole found in the rattlesnakes, copperheads and water moccasons on the side of the face between the nostril and eyes. This cavity sinks deep into the maxillary bone and represents a "blind" sac lined with epidermis, and is not connected with any of the other cavities or organs in the head by any inside opening or canal. The external layer of the lining Leydig found to be a continuation of the outer skin, which, however, upon entering the cavity becomes thin and considerably modified. The surface is found to be composed of large, angular epidermis plates containing nuclei. The only conclusion that we can come to is that this organ is one of special sense. Wherein this "sixth" sense consists we do not know, nor do we know of anything in the habits of these snakes which would indicate its nature, or to what use the animal puts the organ."

The "pit" at once indicates a poisonous snake, and is characteristic of all our poisonous species of North America except the elaps. Another unfailing character is, of course, the presence of long, curved fangs in the anterior portion in the upper jaw. The fangs seem, on superficial examination, to lie in position resembling a knife blade one-fourth open, which must not be mistaken for being loose, for the fangs themselves are not movable; on the contrary, the viper's fangs are as solidly fixed in their sockets as are those of the

[1] **Lenord Stejnegar**: The Poisonous Snakes of North America.

elaps, but while in the latter the maxillary bones, into which the fangs are fastened, are elongated and horizontal, as in the harmless snakes, in the crotalids they are extremely shortened and appear to be in a vertical position.

The fang itself is a large, very pointed, and curved tooth, containing two cavities, the pulp cavity and the poison canal; the former situated on the concave side, the latter on the convex side of the tooth. The poison canal has a more or less slit-shaped opening near the base, on the anterior side of the fang, and another slit, narrower and longer, on the same side some little distance from the very sharply-pointed tip. Between these openings it is often possible to trace a more or less well-defined depressed line. A microscopic inspection of cross sections of the fang reveals the fact that the canal is nothing but a deep groove, the walls of which have closed over it anteriorly, the depressed line indicating the meeting of the wall or the seam. As a consequence of this origin of the canal, it is lined with the same hard layer of dentine as the outside of the fang, for it will be seen that this inner lining of the canal is in reality the anterior surface, while the outer layer is only the posterior surface of the normal tooth.

In the mouth, within the mucous membrane, and upon the pterygoid bone, lie, one behind and another below, the reserve fangs, each smaller than the one in front and less developed, until the situation of the last which is visible is marked by a minute papilla alone. There have been found as many as ten of these on each side of the mouth. When the fang is lost by natural process it is replaced within a few days; when violently displaced, several weeks sometimes elapse before the next fang is fixed firmly enough to be useful to the snake. If the functional fang be lost or shed, the next tooth gradually assumes its position, and finally occupying the place of the lost one, becomes ankylosed.

There are several muscles used in erecting the fang and also the depression of same. The elevator muscle of the fang is the sphenopterygoid muscle which arises along the median ridge of the base of the skull, and running backward is inserted upon the enlarged posterior end of the pterygoid bone. The contraction of this muscle pulls the pterygoids forward, which thus push the lower end of the maxillary forward, the upper end being held in position by the lachrymal hinge. The tips of the fang, describing part of a circle, finally point downward instead of backward. The chief retractor muscle, which antagonizes the elevator muscle by acting in the opposite direction, is the external pterygoid muscle, which, arising from the joint between the quadrate bone and the lower jaw, runs forward and is inserted on the outside of the maxillary bone a little below the joint of the latter with the outer pterygoid bone. It will be seen that contraction of this muscle means a pulling backward of the maxillary bone, resulting in the backward and upward movement of the point of the fang.

Close observation will disclose the fact that a snake when ready to strike its prey, *i. e.*, in coiled position, never has its mouth open, neither can it throw its venom, but when in captivity I have noticed it striking against glass, on which it deposits its venom. Another interesting feature of these snakes at least is the presence of an organ known as the "rattle." Unlike the tails of some snakes, gradually tapering to a point covered by a cone-shaped, more or less acute scale, this species continues rather thick to where the rattle is appended. The rattle consists of numerous rings of dermal, horny consistency, and at each shed of the skin simply retains some of its shed, which adds another button to its rattle. Since the rattle is such a fragile organ, one can easily see how erroneous the old method of determining the age of a snake by its rattle is, and you may find quite old snakes with very few rattles, they having been destroyed by blows, etc. A peculiar fact can be observed that when a snake is moving or crawling along it does so with its tail elevated, which, in a measure, protects the rattle from dragging. In captivity snakes have been known to rattle for hours continuously, and the sound is produced by a vigorous shaking and vibrating of the end of the tail, the dead, horny cones producing a noise resembling that of a locust. Dr. Foektistow states that in a vigorous rattle the tail makes seventy-five vibrations, and the rattle 110 vibrations per minute.

What is the object of the rattle? This question has never been satisfactorily solved; surely, it has caused the snake's extermination to a great extent, especially in cultivated districts. Some philosophers say that since it resembles the noise of the cicada rimosa, the snake used this to decoy insect-eating birds. Others say it is a warning to innocent animals and man. Professors Putnam and Shaler suggested the function to call sexes together. The charming powers of snakes need no mention here, since this erroneous supposition is only for the superstitious.

In the same manner as the gallow fang is developed from the grooved fang, and this again from the plain, solid tooth, so is the poison gland evolved from the ordinary salivary gland by a specialization of the yellow portion of the latter.

The typical venom gland is found in its fullest developme among the pit vipers, and is located on each side of the head belo and behind the eye. The shape is that of a flattened almond, t pointed end toward the front and below the eye, tapering to a na row duct which carries the poison to the inlet at the base of the fan

The interior structure of the gland may be described briefly consisting of a basal cavity into which the small ducts of the glan open. These ducts run toward the walls of the gland, branchi and finally ending in minute blind bags, the whole system of du being supported by a network of numerous fine threads and th sheets of fibrous tissue. The ducts are lined with a more elongat epithelium, the blind pouches with angular epithelial cells. T external covering of the gland is made up of two more or le distinct layers of fibrous tissue, the outer one being continued p teriorly in a ribbon-like ligament, running backward and inserti itself upon the joint of the jaw. A short ligament on the si facing the skull attaches the gland firmly to the latter, and a thi one below connects with the external pterygoid muscle. At t anterior end of the gland, the capsule, the base of which meets t upper opening of the canal, continues as the outer covering of t duct which carries the poison from the gland to the fang. T duct in its normal position makes a sudden upward curve under t eye, descending from which it follows the posterior wall of the p and finally passes over the rounded outer front edge of maxilla bone, at the base of which it meets the upper opening, or inlet, the canal through the fang.

The whole poison apparatus has been very appropriately co pared to a hypodermic bulb syringe, the needle, with its oblique cut point and slit-like outlet, representing the fangs, the bulb co responding to the poison glands, the muscles of the hand whi presses the bulb performing the same task as the anterior tempor muscle.

Now, since all snakes which menace the lives of people and a mals are provided with the terrible organs of offence and defence, is naturally interesting to know something about the terrible pro uct which is a secretion of part of the mechanism of these creature Many eminent scientists have from time to time experimented wi these products, studying them in relation to the chemical constitue they contain, as well as the physiological action on lower animals.

In 1883 Drs. S. Weir Mitchell and E. T. Reichert, of Phil delphia, Pa., laid before the National Academy a preliminary repo of the result of their studies, which after a lapse of twenty yea

Dr. Mitchell has resumed. He imagined that owing to the complexity of the symptoms in snake poisoning, the cause probably was due to more than venom alone. He states in a popular report some of the following facts: 1. When a little of the venom is placed in sufficient water it dissolves readily. 2. Heating coagulates. 3. Heating attenuates the venom. 4. By dialysis he gets a venom peptone, and later a venom globulin. These experiments have been confirmed by Wolfenden, who found in the cobra a large quantity of the globulin, but very little albumose. Recently (1895), Frazer has experimented with the venom of the cobra of India and rattlesnakes of America, and has been able to immunize the animal against thirty times the minimum toxic quantity, and furthermore states that from these animals he found the antitoxin which he calls antivenene.

Calmette has contributed largely to our knowledge of the action of snake venom, of which he says. 1. Dilute solutions of hypochlorite of lime and of chloride of gold destroy or neutralize venom in vitro. 2. The toxicity of the venom is not destroyed by a temperature of 80°. 3. The blood of all snakes, of the salamander, and of the toad is poisonous. 4. The toxicity of the blood is destroyed by a temperature of 68°, therefore the toxicity of the blood and that of the venom is not due to the same constituent. 5. An animal may be immunized against the venom or against the blood, but immunity to the venom does not give immunity to the blood. 6. Possibly some immunity is possessed by the hog, but there was no opportunity to demonstrate this. 7. An animal immunized against venom is not immune to tetanus, while antitetanus serum from the horse does retard or wholly prevent the action of venom.[1]

The above-named scientist has contributed to the public an antivenene which does, without doubt, save an animal's life against certainly fatal doses of the venom.

In April, 1899, Professor Joseph McFarland and myself started an experiment for the H. K. Mulford Company on the same lines as Professor Calmette, using horses which were gradually immunized until the quantities of the venom they could withstand far exceeded that which would certainly have been fatal at initial injection. The following is a short clinical record which I have observed from time to time while conducting these experiments, which may interest some of you to whom cases are brought from time to time for diagnosis and treatment, which are suffering from snake bites.

The clinical symptoms attending the injection vary according to the method of injection. If it be subcutaneous, the venom bein very irritating, causes much inconvenience the moment the lyn phatics start to take it up, and from this time on the animal suffe great pain. Soon after the injection inflammation takes place, wit the attending phenomena, swelling, pain, etc. The termination this swelling may be suppurative or by absorption, and this agai varies in different horses or at different times in the same horse. O great peculiarity about these infiltrations is the large area affected for instance, if a horse be injected on the left side above the superio border of the scapula the infiltration will often extend anteriorily middle third of cervical region, and the entire arm and often for arm on the same side, posteriorly to middle of dorsal region fro backbone to abdomen, and very often continue upward on si opposite injection.

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[1] Vaughn and Novy: Ptomains and Leucomains.

The animal suffers during respiratory movements, so the latte are almost entirely abdominal and usually shallow. The anima rarely assumes decubitus position, since any excessive movement attended with great pain. Suppuration takes place, the subcutaneou tissue and skin remain hard while the melting down process progressing underneath, so that unless the abscess is deeply cut int the whole area will slough out. The temperature usually remain normal until pus forms, but animal often breaks out in violent pe spiration which feels cold to the hand, while the infiltration is ver hot and dry, the line of demarcation being sharply drawn and ofte raised one-half to one inch. Post-mortem shows tissues involve very black, resembling that of a bruised muscle with ecchymoti spots distributed through, and here, too, the line of demarcation even more closely discernible. The formation of pus is usuall attended by the production of gas which is very offensive an nauseating, the exact nature of the micro-organism causing this ga production I am not prepared to define. If pus is not formed b the end of three days after the injection the horse will graduall resume eating, although appetite is often fickle, and the infiltratio will pass away in from five to seven days. The infiltration some times extends to the extremities, and when this is the case the articu lations are largely involved; palpation shows entire joint enlarged swollen, œdematous, and of a doughy consistency, pits on pressure and usually very sharply outlined. This, however, passes away i about two weeks. When horses or cattle are bitten by rattlesnakes the usual seat of injury being the extremities, they swell enor mously and often result in a chronic cellulitis or elephantiasis from which they never recover. This chronic condition is noticed als in horses when they are injected frequently with small doses of the venom in the same area, even if on side of neck or shoulder, but it is not so noticeable as if it were on extremities.

When the animal is injected intravenously the case is somewhat different than that from subcutaneous injections. I usually place him in slings preparatory to injecting, the seat of which may be any large subcutaneous vein; cleanse and prepare place of injection in usual way, and in every case use large dilutions, since small concentrated solutions are far more dangerous, especially when thrown into the circulation. This fact, by the way, explains why an animal is often killed almost instantly when bitten—*i. e.*, on account of reaching the circulation at once, or if it be a small animal, either the pleural or peritoneal cavities, hence rapid absorption and death. The dose varies according to the degree of immunity the horse has attained and the violence of the previous reaction, and not to the length of treatment, as we often have to decrease the dose and lengthen the intervals between injections, depending upon the condition of the individual animal. The reaction takes place as soon as the venom reaches the circulation, but not violent at first, since the dilutions are very great, and doses graded according to the animal under treatment, besides when giving large amounts of any liquid intravenously I prefer giving by gravity method and with a needle of fairly small calibre; in this way the progress of material is retarded and enters the circulation slowly, so by the time the last part of solution has entered the blood the first part has probably made the entire circuit.

The first reaction usually noticed from intravenous injection is a cough, often violent, then uneasiness, pawing, shaking head, and in general resembling symptoms shown by an animal which you have bled to his limit before fainting. After this disappears, and it lasts but a few moments, the horse makes a plunge forward (if not protected will injure himself, being at this stage entirely unconscious), and if allowed to go down on the floor will lie for a few seconds apparently quiet, then usually have a spasm. In one case I noticed one which suddenly rolled on his back with his four feet in the air, and, with muscles cramped, held them in this position for a few minutes, and in probably five minutes was on his feet. Following all these injections intravenously, there will be noticed defecation, the feces often covered with mucus of a bloody tinge, and the greater the amount of this elimination the shorter is the time of the attack. If one is not cautious when injecting intravenously, some of the venom solution will enter the subcutaneous tissues or jugular gutter, and then the swelling is very pronounced and often gives much troub so while the needle is in the jugular vein it is well to gently manip late the tube through which the solution passes, in this way avoidi the trouble above mentioned.

The idea of those experiments is, of course, to produce an an toxin for snake bites, and such has been accomplished by Calme and others abroad, but as yet we have not succeeded in producing product of as great strength as the above-named scientists. Ho ever, the plan outlined is practicable, and we have one horse whi has yielded some fairly high-grade serum, *i. e.*, some which will, small quantities, certainly protect an animal against fatal amou of the venom.

The other antidotes which are commonly used are chloride of li or gold, 10 per cent. solution, ten to twenty drops injected in a around the place bitten; these products neutralizing the venom that it is rendered non-poisonous. The general treatment is stry nine pushed to the therapeutic limit; given in any way, but probal best hypodermically, since it is absorbed more readily. The act cautery is efficient, but not practical on account of the scar a pain, and must be very deep to be of any use, especially wh bitten by a large snake, since the fangs are inserted deep in flesh. Ligatures should be placed about the member as soon possible to prevent general absorption and circulation until neutralizing remedies are secured and administered. Perhaps some future time when science is called upon to solve these pr lems there will be some standard remedy for these terrible poiso ings, and we hope in the near future to place before the professi some antivenene which will be as reliable as the now universa used diphtheria antitoxin.

SOME THOUGHTS ON A CITY'S MILK-SUPPLY.

THE science of dairying is at present making rapid strides. T subject is being developed and taught in dairy schools connec with agricultural colleges and State universities, and in numer bacteriological and chemical laboratories at home and abroad.

Very much more is now known of the relation of foods, mana ment of cattle, health of cows, sanitary and unsanitary stabli conditions, methods of milking, and the treatment of milk after is drawn and while en route to the consumer, than ever befo Further information in respect to all of these and other rela dairy questions of vast economic and sanitary importance is being rapidly gathered and made available for the use and benefit of producers, distributers, and consumers of milk and other dairy products.

These questions are scientific, and are being developed along scientific lines by men especially trained for this work. All of these developments have important bearings on the milk-supply of cities, and should be applied so that all branches of the milk trade and consumers of milk shall be benefited.

Years ago milk venders were permitted to sell as milk anything that had the general appearance of milk and tasted like milk. It mattered not whether this fluid was robbed of its cream, diluted with water, charged with filth, visible and invisible, or obtained from diseased animals fed on putrid food and kept under the worst imaginable conditions. To check fraud and, in a certain measure, to protect the public from disease, laws have been enacted under which cities and towns have appointed milk inspectors. These officials are required to see that milk sold within the limits of their jurisdiction does not fall below a certain chemical standard established by law. In this way the public is protected against gross adulteration, and is not required to pay more for milk than it is worth as gauged by the chemist's analysis.

Other requirements have since been established that have led to the abolition of some of the most flagrant and openly disgusting conditions under which milk was formerly produced. While the large city "swill milk" cow stables are a thing of the past, other objectionable and dangerous conditions and practices exist that are harmful to the consumer and injure the milk trade.

For the past ten years or more the milk-inspection service of Philadelphia has consisted in the enforcement of a legal standard for milk, which requires that it shall contain a certain percentage of fat and other solids, thus protecting the pocket of the purchaser. The authorities charged with the inspection of milk in Philadelphia have recognized and have shown in their reports and by their action their appreciation of the high importance of the sanitary conditions under which milk is produced and handled. But when attempts have been made to place in operation measures intended to improve milk from the sanitary side these attempts have been so sweeping and arbitrary that they have served to restrict the usefulness of the work of the milk-inspection division. As an instance, the regulation in reference to milk from Chester County may be cited: It came to the attention of the chief of the milk-inspection division that tuberculosis prevailed among certai herds in Chester County, and in utter disregard of the fact tha this was not a new thing, that the disease had prevailed there fo many years, and was quite as prevalent among cattle in all othe sections within the same distance of Philadelphia, an order wa issued to the effect that milk from Chester County should not b received and its sale should be prohibited in Philadelphia. It i needless to say that this order created an immense disturbance, wa naturally barren of beneficial results, and it was soon withdrawı Its only effect was to bring the milk-inspection division into di repute, for it exposed its ignorance of the producers and of th industry it is called upon to oversee. As another instance of similar character, attention may be called to the order that was issue in relation to the testing of cows producing milk for sale in Philadelphia. This order emanated from the Board of Health, and pr vided that all cattle supplying milk for sale in Philadelphia shoul be tested with tuberculin, and only the milk from non-reacting cov should be offered for sale. Dealers were, by this order, required t obtain certificates from their producers, showing that the cattle wer examined in accordance with this regulation. There was neithe law nor machinery for enforcing this order. It was intensely ur popular among the producers, who would have suffered incalculab loss if it had been enforced. At that time there was not tuber culin enough in the United States to test a tenth of the cows cov ered by this order, and that Philadelphia did not suffer a milk famir and the milk trade become utterly demoralized was due only to th fact that no effort was made to enforce this impossible regulation.

The prohibition of the sale of skim milk also illustrates an i comprehensible attitude and peculiar conception of the duties of th milk-inspection division. Skim milk is a very cheap, nutritiou wholesome, and useful food. It sells for a price that brings within the reach of people who cannot afford to buy whole milk ar who are deprived of the advantages of a partial milk diet if the sa of skim milk is prohibited.

The city is to be congratulated upon the fact that its preser Executive at once recognized this fact, and was inflexible in his pos tion that the poor man's family should not be deprived of an impor tant, wholesome, and unobjectionable addition to their meagre diet

The improvement of the milk-supply of Philadelphia has, it believed, been hindered in some instances by the harassing survei lance to which the earnest advocates of improved systems have bee subjected.

The attitude of the milk-inspection office in relation to the sale of milk in bottles, which is generally recognized as a great advance in sanitary distribution, was reactionary and obstructive.

Attempts of the Philadelphia authorities to secure changes in the State laws relating to the milk inspection have uniformly during the past ten years resulted in failure. The changes that were suggested by the milk-inspection division were actively opposed by the milk producers and milk dealers, and did not receive the support of the general public.

The office of the milk inspector should be in touch with all portions of the milk trade, and should be in sympathy with every attempt to improve the milk-supply of the city. The chief milk inspector should be thoroughly conversant with the conditions under which milk is produced and the problems that confront the producer and shipper. He should be informed as to the transportation, protection, and distribution of milk. He should know the influence of different sanitary conditions, diseases, and foods on the quality and wholesomeness of milk. He should keep pace with the modern developments of dairy science, and should see to it that the useful and practical discoveries following each other with such rapidity are applied for the protection and benefit of milk consumers and the milk trade.

The chief milk inspector should not only recognize that milk is dangerous under some conditions, but he should be able to avoid these dangers. He should not attempt to minimize the harm that may result from the consumption of unwholesome milk by placing all milk in disrepute and by endeavoring to check the sale and use of this product. On the contrary, he should know that milk is one of the most wholesome and nourishing articles of diet, and that at its present price there is scarcely another food to compete with it on the score of economy, and while its consumers should be protected, the use of milk should also be encouraged.

In other words, the chief inspector of milk should have complete knowledge as to how milk is at present produced, cared for, and distributed. He should also know the best methods of producing, protecting, and distributing milk, the extent to which it is possible to improve existing conditions, and the means to be adopted to this end.

The office of the chief milk inspector should not lack the sympathy and support of all branches of the milk trade.

It is our opinion, after mature deliberation, that the milk-supply of this city could be materially improved and the consumption of this food increased without further legislation or expense to the cit if harmony and a better understanding existed between the pr ducers and distributors on one hand and a thoroughly equipped chi milk inspector on the other.

HORSE SICKNESS.

By Dr. W. Ramsey Smith, B.S.C., M.B., C.M.,
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In 1854-55 Cape Colony was visited by an extensive outbrea of horse sickness that carried off 64,850 horses, mares, and foal representing a value of over half a million sterling. There hav been other epidemics at various periods from 1780 down to recen times. In 1891-92, 14,000 horses died.

The epidemic of 1854–55 was investigated by the Cape of Goo Hope Agricultural Society through circulars sent out to the Civ Commissioners of the various districts of the colony. The conclusio arrived at was that horses were liable to horse sickness if they wer left out in the night air in a season of general malaria and pe mitted to eat grass which had become dew-laden.

In 1886 the Imperial Veterinary Department sent out Mr. Joshu Nunn, a veterinary surgeon, as specially fitted for the investigatio of this disease on account of his experience of diseases of horses an cattle in India. He was instructed to make a report upon th horse sickness as it appeared in various parts of South Africa. A the end of a year he reported that the horse sickness is not anthra After another year's work he was able to report that it is n contagious, and is due to climatic causes. So far all investigatio had reached conclusions regarding what the disease was not, b there was very little information as to its true nature and patholog

In 1891 Dr. Edington, F.R.S. (Edin.), went out from Edinburg as Director of the Colonial Laboratory of Bacteriology. One of h first duties was to investigate the nature, origin, and occurrence this disease, and, if possible, to discover a cure for the malady. I his early investigation he had the help of Messrs. Wiltshire and Ray mond, who had formerly carried on investigations with Mr. Joshu Nunn. Later on he was assisted by Dr. Carrington Purvis and D R. S. Black. Dr. Edington has reported at various times, ge erally on the symptoms and incidence of the disease, and especiall on its pathology and bacteriology; and for some years he has been diligently searching for a mode of successful treatment..

Lately, when in South Africa, I paid a visit to the Colonial Bacteriological Laboratory at Grahamstown, where Dr. Edington and others have been working on this subject. Mr. Desmond accompanied me, and we spent some days in examining pathological and bacteriological specimens connected with the disease and in discussing the symptoms, lines of investigations, and other problems connected with it. I had also the advantage of discussing these problems with Dr. Carrington Purvis, who, like Dr. Edington, had formerly been my colleague as assistant professor at Edinburgh University. I found he had been carrying out investigations into certain diseases in South Africa on lines he had laid down and discussed with me more than ten years ago. Mr. Desmond and I were thus in a position to know what facts were settled regarding this sickness, what points were in dispute, and what problems were under investigation. We also spent some time at the Imperial Remount Depot at Port Elizabeth, which was under the care of several eminent veterinary surgeons, and we were for two or three weeks in company with Captain Hayes, F.R.C.V.S., a writer whose veterinary reputation is world-wide, and an enthusiast in everything pertaining to horses and veterinary pathology. On a former visit to South Africa, in 1892 he had seen cases and made inquiries regarding the disease in Cape Colony, Orange River State, the Transvaal, and Natal.

Hitherto this particular lung sickness of horses had not been found outside of Africa. It is even doubtful if outbreaks that have been reported from North and Central Africa are identical with or even similar to the sickness as manifested in Cape Colony, the Transvaal, Natal, and other parts of South Africa.

Three forms of the disease are recognized. First—*dun-paardzietke*, horse sickness; second, *dikkop-zietke*, or swelled head; third, *blutong*, so called on account of the bluish color of the tongue. For a time it was thought that the disease was an uncommonly rapid one, on account of the victims, apparently well, becoming all at once acutely ill, and dying with well-marked symptoms within a few days or even hours. For some time it was found impossible to transmit the disease directly from one animal to another, but this has been successfully accomplished by Dr. Edington in two different ways; and, as a result of this, it has been established that the disease in its acute form has a definite incubation period of from eight to nine days.

The symptoms during life are not absolutely characteristic of this disease, since most of them, if regarded singly, might be ascribe to other and different diseases, but the aggregate of symptoms to b found on careful observation of any well-marked case is sufficientl diagnostic. If the single symptoms, however, cannot be pronounce to be absolutely characteristic there is no room for doubt regardin the nature of the malady when its pathology is investigated. Th post-mortem appearances are definite, distinct, and unmistakabl and cannot possibly be confused with anything else in the who range of human or animal disease. Horse sickness is essentially disease of the blood and lungs, the most characteristic feature bein gelatinous-looking dropsy of the fibrous framework of the lung with hemorrhages under the lining of the lung, and a stagnation greatly-altered blood at definite points in the lung substance, wi dropsy in the air cells, these changes being unaccompanied by an inflammation. Appearances in other organs of the body var according to the duration and severity of the disease, and probab also, in some degree, to the manner in which it has been acquire At this point the conclusions to be drawn from the symptoms an pathological anatomy are as follows:

That the disease as manifested in the lungs of horses at Po Pirie is in nowise distinguishable from South African horse sic ness, which shows such a well-marked aggregation of naked-e and microscopical appearances as marks it off from all know diseases.

That the disease differs from the most common forms of Sou African horse sickness in so far as it is more chronic and is ass ciated with less fever and less dropsy of the heart sac and of t pleural cavities. These appearances, dropsy and fever, are wh would naturally be expected in the more acute forms of the diseas

The investigation, so far as this State is concerned, might ha stopped here, incomplete, in hope that by-and-by investigato elsewhere would work out its history and discover further fac regarding its true cause and cure. But another development in t investigation has changed the whole aspect of the question. C the day on which Mr. Desmond and I made post-mortem examin tions of horses in the presence of a number of farmers, hors owners, and others, Mr. Desmond made a thorough investigation the bloodvessels of three of the horses, and found aneurisms—(*i.* localized dilatations or swellings) in certain of the smaller arteries the abdominal cavity, due to the presence of an animal parasite- the *strongylus armatus.* Now, these aneurisms are recogniz as not uncommon in horses in some parts of the world, and the dependence on the presence of this parasite is definitely recognized. When very large, they may press upon the diaphragm (midriff), and so cause, to some extent, some of the symptoms one finds in lung sickness; but, in the cases examined, the aneurisms were small, and exerted no pressure whatever on the diaphragm, nor by any mechanical action could they give rise to such symptoms as are commonly associated with their presence in an advanced stage. The problems that now present themselves are:

1. Is the presence of the *strongylus* in those particular horses a mere accidental occurrence, having no reference whatever to the lung sickness?
2. Is it possible that the *strongylus*, in a way not hitherto understood and not as yet recognized, may cause all the symptoms that appear in this South Australian horse sickness?
3. Is the horse sickness in South Africa associated with, or caused in any way by, the presence of *strongylus* in the abdominal arteries?
4. Are we dealing with a form of lung sickness that may have two distinct and unconnected causes—a fungus in South Africa and an animal parasite in South Australia?

These are problems that demand solution, not in the interest of pathological science so much as in the interests of State economies and of the particular individuals concerned.

A horse belonging to Mr. Crispin, which had been suffering from the symptoms of horse sickness for some months, died and was subjected to a post-mortem examination by Mr. Desmond. The lungs presented the appearances described as characteristic of the disease, and there were numerous aneurisms, associated with *strongyli*, in the branches of the abdominal aorta.

It may be well to mention that a horse in another part of the State suffered from symptoms of lung sickness, and was found post-mortem to show the lung characteristics and aneurisms with *strongyli* in the same way as the Port Pirie horses.

Drs. Buckley, Walters and Swan, of the Veterinary Department of Street Cleaning, of the city of New York, have given it as their professional opinion that the mallein test for glanders of horses is unreliable and worthless. Surely this is not in accord with the experience at home and abroad in the use of this product as a diagnostic agent.

ABORTION IN COWS.[1]

By Walter S. Phillips, V.S.,
READING, PA.

Abortion is an affection which, when once it affects tl
farmer's or dairyman's herd, causes much vexation and loss.

Abortion is so called when the fœtus or impregnated ovum
expelled four or six weeks before the normal period ; prematu
birth, that is, when the fœtus is advanced enough to live. Mar
are also subject to it, but very few of them.

I notice a great veterinarian has said that abortion is a disea
of nervous origin—a loss of equilibrium between the nerves
voluntary and involuntary motion. The direct cause of this sta
exists in anything that can derange the organs of digestion. Gre
sympathy is known to exist between the organs of generation ar
the stomach ; if the latter be deranged the former feels a corr
sponding influence, and the sympathetic nerves are the media l
which the change takes place.

Emanations from putrid animal remains, miasmata, overfee
ing, derangement of the stomach, stimulating powders containi
demulcents and diuretics, blows, excitement, injuries, musty fodde
indigestible food, and a low condition or plethora may cause it.

I was called, several months ago, to a dairy where from twen
to thirty cows (Holstein) are kept—never less than eight or t
cows.

On the last visit I found a young bull in the midst of the he
of cows ; also an older bull among them ; the younger anim
teasing and exciting one cow, then another. I witnessed this, ar
notified the owner to remove them—to tie up the young anima
This remedied the evil. I had stagnant pools which were in t
barnyard, and had caused abortion for years, removed or filled u
After the removal of these pools the cattle improved.

I will relate a case of abortion in a fine setter bitch. T
owner explained the case to me, which occurred about the ho
days. He could not account for it; the loss of the pups griev
him, as they were valuable. No bad odors, no slaughter-hou
near—nothing. Questioned him : "I suppose you killed
turkey?" He said, "Yes; just the day before the loss of t
pups." I also asked him : "Was the animal present at the time

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[1] Presented at the annual meeting of the Pennsylvania State Veterinary Medical Asso
tion, March 4 and 5, 1902.

"Yes; licked up some of the blood; took the head of the turkey in her mouth; appeared very much excited, running up and down the yard. The next day appeared to have some irritation of the vagina, and in a few hours gave birth to her pups." I think this case worth mentioning.

Preventives. Isolation, disinfectants, and fumigants. Give daily some preparation to each cow with calf, for four or five days.

In the majority of cases the placenta must be removed.

PROTARGOL IN VETERINARY SURGERY.

By W. E. A. Wyman, M.D.V., V.S.,
PORTLAND, MICH.

(Concluded from page 278.)

15. *Punctured infected wound in front of patella, caused by pitchfork.* Two cases. Region of stifle enormously swollen; sanious discharge; no appetite; temperature, 103° F. and 104° F. respectively. The outer opening was enlarged, and the whole thing bubbled out with H_2O_2; a counter opening was made in the lower third of the internal face of the thigh; 10 per cent. protargol injections were ordered every two hours, with continuous hot water irrigations. Complete recovery in five and six days, respectively.

16. *Fistula on the internal face of the tarsal articulation following a kick.* The wound has discharged steadily for three weeks; 10 per cent. protargol injections three times daily. Complete recovery in fourteen days.

The writer is convinced that at best the injections were made once daily, as the whiskey injections which the owner habitually made and makes upon himself forbade punctuality on his part.

17. *Protargol* is of great value in infected wounds of the sensitive parts of the hoof; in fact, it is the only agent the writer so far employed successfully in the treatment of hoof wounds of a neurectomized hoof; that is, as far as such a hoof is capable of restoration. In deep, serious nail-pricks after curetting the nail tract, provided such treatment is warranted, the introduction of a cocoa butter protargol bougie gives good results, the pain disappears rapidly, and it is in these cases (92) that the writer imagined protargol to be possessed of anodyne qualities. Protargol has entirely replaced any other antiseptic as a dressing where the entire removal of the frog—

that is, the sensitive frog—is necessary, as in resection of the perforans tendon in necrosis from nail-pricks. In these cases, afte resection of the perforans tendon, scraping of the os navicular cartilaginous gliding surface, etc., the whole field of operation i finally thickly dusted with protargol, and sterilized oakum tampon placed over it, which again are held in place by bandages. Th hoof thus dressed is enclosed in a leather boot. Since using protargol in these cases the dressing is changed for the first time o the twelfth day; of course, the animal's temperature is observe daily. Almost invariably the œdematous state of the subcutaneou tissue along the shin of the operated hoof previous to the operatio will disappear entirely about the sixth day, while a healthy lot granulations without any pus will greet the examining eye on th twelfth day. It is well to soak the hoof thoroughly with war antiseptic solution the day previous to the first removal of th bandage, as the blood and protargol cause everything to stick tightl That such an operation as resection of the tendon is done lege arti and no jack-knife-style asepsis indulged in, need hardly be mentioned.

18. *Quittors.* As long as the necrotic tissue does not lie belo the level of the coronary band, protargol injections will give quic and satisfactory results. Beyond that drainage is essential, and th quickest work is done by the knife. Certainly, this is a very general rule, and, therefore, not to be employed in every instance nevertheless, it outlines the usefulness of protargol injections in quittors, and that is the only point under discussion at this momen Generally speaking, all quittors which lame the animal but littl ought not to be operated on, because protargol as given subject injected about three times daily, will render good service. The tim consumed by this injection treatment with the horse at work is fro four to six weeks. In those cases where the pain and swelling a too great to permit of an immediate operation—that is, removal the lateral cartilage—preparatory protargol injections soon will d away with the swelling and active pain, so much so that the owne often prefers the continuation of the protargol injections to extirpation of the lateral cartilage.

19. *Injuries to the coronary region,* especially when infection ha taken place, often lead to serious consequences. Such injuries a frequent during cold and slippery weather, as the animals calk themselves with the sharp shoes, and, as a rule, infect the wound at th same time. The diffuse phlegmonous states and gangrenous processe spreading to the sensitive laminæ and leading to ungulation, caus

death. A penetrating and strongly bactericidal agent is here desirable, and protargol is the remedy par excellence. After removal of the hair and all lacerated tissues the wound is thoroughly disinfected by a creolin, or, better yet, formalin bath; next, the wound is covered with absorbent cotton, which is kept moist with the protargol preparation given subject 5. This dressing is permitted to remain for three or four days, unless the pain and swelling increase. In those cases with phlegmonous states of the subcutaneous connective tissue protargol or any other agent is likely to fail, as septicæmia or more likely pyæmia may bring on a fatal termination. The many observations made on injuries to the coronary region the past winter plainly show that protargol, without a question, is the safest, most penetrating bactericidal agent at present at the disposition of the surgeon in the treatment of injuries of that delicate part—the coronary region of the hoof.

In diseases of the eye protargol gave excellent results in all forms of purulent conjunctivitis, employed in 1 to 5 per cent. solutions, the treatment consisting in washing out the conjunctival sacs with a soft rubber bulb syringe once to three times daily. The œdematous state of the eyelids, as a rule, disappeared in two to six days, the purulent discharge rarely persisting longer than nine days. Ulcerations of the cornea as met with in distemper of the dog are readily handled by swabbing the part with a 10 per cent. protargol solution once daily for five days. Protargol in powder form has been used in a great many accidental wounds and in those made by the surgeon's knife. It readily adheres to the parts, forming a dry scurf, under which the process of healing, free from pus, takes place. The writer has used it instead of iodoform in numerous neurectomy wounds, healing by first intention being the rule, with better scar formation than any other antiseptic dressing, dry or moist, formalin being the only one which forms a close second.

Twice the writer has had the chance to prescribe protargol internally. The fact that it is not precipitated by dilute salt solutions, albumin, dilute hydrochloric acid, etc., puts its sphere of usefulness at once above nitrate of silver, and, outside of a slight constipating effect, nothing deleterious was observed. Of course, only two cases presented themselves, and while the action of the drug was all that could be wished for, the clinical material in this instance was too limited to permit of any positive deductions.

1. Large Newfoundland dog. Has been suffering with recurrent diarrhœas for six months. He was given a pill of 0.2 gramme protargol three times daily. In two days the stools became normal,

and the animal was given 0.1 gramme once daily for one wee Results permanent so far (four months).

2. English setter. Hæmatemesis on and off, with colicky pain Great loss of body weight since the past eight months. Wa given 0.5 gramme in powder form. Vomiting of blood ceased i twenty minutes after the powder had been given. Next day th animal had quite a hemorrhage from the bowels, and received tw powders of 0.5 gramme each, two hours apart. The next intestin evacuation was free from blood. The animal after that was ordere 0.2 gramme daily for ten days. Remained well since (two months

Summary: 1. The application of protargol, even to delicate part as the eye, seems to annoy the animal but momentarily. Whe applied to fresh wounds no inconvenience seems to be experience by them at all.

2. It is a powerful and penetrating bactericidal agent.

3. It is a most active cicatrisant.

4. It is of special value in purulent infiltration of soft tissues.

5. In eczematous dermatitis of the lower phalanges it is the be remedial agent known to the writer, but has no special influenc upon the course of dermatitis chronica verrucosa (greasy heels).

6. It gives superior results in the treatment of fistulous tract provided the general rules of surgery as to drainage, etc., are ob served.

7. In otitis externa (canker of the ear) its action is astonishingl prompt and lasting.

8. Its peculiar properties render it continuously active, as it i not detrimentally influenced by the constituents of wound secre tions.

9. Internally in gastro-intestinal ulcerations its action seems t be prompt and safe.

ETIOLOGY OF RINDERPEST. The microbe of rinderpest, whic still remains to be cultivated, belongs, according to Nicolle an Adéle-Bey, to a group still invisible to the microscope. Two simila organisms are actually known, that of pleuropneumonia, discovere and cultivated by Nocard and Roux, and that of aphthous fever, di covered by Löffler, which until now has not been cultivated. Th latter will pass through a Berkefeld filter while the former will no

The germ of bovine pest, according to the authors who exper mented with filtrations and injecting the filtrate, is intermediary i dimensions between the organisms of Nocard and that of Löffler.— *Comp. Rend. de l'Acad. de Paris.*

DEPARTMENT OF CANINE, FELINE, AND AVIAN MEDICINE AND SURGERY.

BY CECIL FRENCH, D.V.S. (MCGILL AND MUNICH),
WASHINGTON, D. C.

RELATIVE SUSCEPTIBILITY TO FOLLICULAR MANGE. Some recent observations on follicular mange have led me to believe that the young of the domestic dog possesses a greater predisposition to infestation by the parasite acarus folliculorum than does the adults. A Great Dane bitch, aged eighteen months, in perfect health, without any sign of skin trouble, and which with its mate had been in isolation from other dogs for over a year, gave birth to a large litter. Ten weeks later one of the pups was shipped to a distance of some five hundred miles, and another was obtained by myself and introduced to my own kennel, being placed in the company of another Dane bitch, aged four years, with a puppy of its own, aged eight weeks.

At that time every animal was apparently in perfect health. Three weeks later I observed the hair of the head of the new-comer to be falling out. Closer examination showed the head and front of the neck to be diffusely inflamed with a few minute, isolated pustules. Microscopical examination of the contents of the pustules revealed the presence of the acarus folliculorum.

Understanding the almost ineradicable nature of this disease when diffuse, I immediately removed this animal and destroyed it. At the same time I inspected the remainder of the litter and found everyone of the puppies similarly affected. The mother of the litter, though still running with her offspring, showed no trace of the disease.

I next closely examined the puppy of the second bitch, but found the skin clean and free of any disturbance. This animal and its mother were removed to new quarters, in order that they might be far from any possible source of infestation in the old. Four weeks later this puppy also developed the disease, and about the same time I received word that the puppy which had been sent away at the beginning was also infested.

Neither adult bitch has shown any trace of the disease up to the present, a period of two months since the second puppy was destroyed.

These cases would seem to demonstrate that puppies are highly susceptible to infestation by the follicular parasite; that the disease is very contagious among them ; that adults may enjoy freedom from infestation amounting almost to immunity, and that the parasite itself may exist in the soil in localities where it is indigenous.

Remedy for Circumscribed Follicular Mange. A case presenting two isolated patches of this disease on the head was treated with Peruvian balsam and Tuson's tincture of iodine, these two medicaments being used on alternate days. At the end of four weeks' constant application the diseased areas took on a normal appearance, and the hair commenced to grow. There has been no return of the trouble, and two years have elapsed since the outbreak.

Goitre Cured by Iodine Medication. A greyhound bitch, aged eleven years, was brought to me suffering from a large follicular goitre of the left side. Breathing was much impeded, and the animal was considerably distressed at times. I prescribed 5-grain pills of potassium iodide, to be administered every two hours. This treatment was kept up continuously until the animal had received 400 pills, or a total of over 4 ounces of the drug, when she was entirely cured of the enlargement. Beyond a slight reddening and weeping of the conjunctiva no unpleasant effect was produced.

Unusual Exhibitions of the Maternal Instinct. I have already reported in the columns of this Journal instances of the suckling of puppies by a cat and of kittens by a dog, but the following cases are decidedly more remarkable :

A man by the name of Price, living at Dickinson, near Boyd, Md , owns a cat that has adopted five young rabbits, and is nursing them along with three of her own kittens.

In the April number of the *Cat Journal* there is an account of the adoption of a family of young rats by a cat, and accompanying the same is the incontrovertible evidence of a photograph.

Mr. S. C. Cross, of Great Cacapon, W. Va., has in his possession a female cat which is at the present time suckling four young gray foxes.

Miss Burrint, proprietor of the Columbia Cattery, at Washington City, reports owning a cat which is nursing its own litter together with a young guinea-pig.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

HERMAPHRODISM IN A BOVINE ANIMAL. The animal, about three and a half years old, had the general conformation of the castrated male, with a penis, two small teats, but no evidence of a scrotum nor the cicatrices of castration. He had the sexual ardor, and tried to mount other male or female members of the herd.

On opening the abdomen the following conditions existed: A perfectly developed female uterus, and attached to the anterior extremity of the broad ligament was a testicle on the right side and an ovary on the left, symmetrically situated. The testicle was softer than normal; the ovary was smaller than the testicle. Their histological structure was not as characteristic as the macroscopical appearance, and both resembled their common origin —the indifferent genital gland of the embryo.—*Sec. de Biologie.*

SUDDEN DEATHS OF GASTRIC ORIGIN. The vulgar diagnosis of "heart trouble," without any tangible evidence, is known to everyone. Lancereaux has made a necroscopical examination of fifty cases of this kind without finding any cardiac or aneurismal lesions. He believes that a common cause consists of nervous troubles of the stomach, and especially dyspepsia. Such fatal syncopes occur in consequence of the acute excitability of the heart by the troubles existing in the stomach. Sudden deaths are the result through reflex action of the instantaneous arrest of an essential function by altered nerve influences.—*Acad. de Méd.*

TRANSMISSIBILITY OF HUMAN TUBERCULOSIS TO CATTLE. Since 1890 Karlinski, of Bosnia (*Œstreich. Monat.*) inoculated twenty-five bovine animals, previously tuberculinized with the human tubercle bacillus, employing cultures on bouillon, and agar and fragments of tuberculous liver and lymph glands. In the ten animals which became infected the inoculations were made as follows: intrapleural, twice; intratracheal, intramammary, subcutaneous, testicular, each once; intraperitoneal, four times.

In fifteen cases the inoculations were negative, and the auth concludes that the sensibility of the bovine organism to the bacill of human origin is relatively limited. From one experiment appears that the bacillus obtained from tuberculous lesions of heifer inoculated with the human bacillus seemed to have increas its virulence, although positive proof of this requires furth experimentation.—*Ann. de Méd. Vét.*

Chrysoform. Chrysoform, a bromo-iodide of hexamethy enetetramin, is a yellowish powder emitting a slight odor of iodin It is a powerful antiseptic and cicatrisant. It may be used as powder, ointment, or emulsion in glycerin and water.

Cadiot especially recommends it in poll-evil, fistula of th withers, and the various quittors. In cartilaginous quittor th fistulous orifice is enlarged with a bistoury, and after arrestin the hemorrhage the tract is filled with chrysoform and pushed far toward its bottom as possible. This dressing is renewed eve three or four days.

In fistula of the poll and withers the fistulous tract is washe out with an antiseptic solution, then packed with chrysoform, an its orifice tamponed with gauze.

Cadiot cites many observations in support of this treatment.— *Rec. de Méd. Vét.*

Luxation of the Crystalline Lens. The adhesion b tween the crystalline lens and the zone of Zinn in the horse ca be broken from violent compression of the ocular globe as we as by certain pathological states of the ciliary body. When di placed forward it falls into the anterior chamber of the eye, an often contracts adhesions with the membrane of Decemet, assum ing a grayish-blue color. When dislocated backward into th vitreous humor it falls into the bottom of the posterior chambe atrophies, and may become visible only with the ophthalmo scope.

Sometimes the luxation is incomplete, the lens becoming dev ated at an angle. It soon becomes opaque, intercepting the ray of light, which causes the animal to hold his head to one side, i order to allow the light to pass through the free part of the pupi

When the lens floats free in the anterior chamber it may b removed by incision of the cornea close to its border; whe adherent to the cornea treatment is not recommended.—*Schimme in Ann. de Méd. Vét.*

LIGATURING OF THE DIGITAL ARTERY IN FOUNDER. Joly relates three cases of ligaturing of the digital artery in acute and subacute osteitis of founder.

The first case was very aggravated, and the animal had to be relieved at once or destroyed. The external digital artery of both forefeet was ligatured, and the improvement was at once decided. The four hoofs were subsequently shed, but new hoofs of good shape were reproduced.

The second case, a thoroughbred horse, showed considerable deformity of the anterior right foot, accompanied by lameness. After the ligation of the artery the lameness disappeared, the deformed hoof was improved, and the animal was sent to work.

In a third case the results were similar.

The place of election for the ligaturing is the same as that for low plantar neurectomy. The artery is ligated with silk or catgut in two places and then sewed.

Joly recommends this treatment in all cases of acute or of subacute osteitis (laminitis) if the third phalanx has resisted the usual treatment.—*Rec. de Med. Vet.*

AVIAN DIPHTHERIA. According to Guérin, chief of the laboratory institute of the Pasteur Institute of Lille, avian diphtheria is caused by a cocco bacillus, which is aërobic or anaërobic, mobile, taking Gram's stain, not liquefying gelatin nor coagulating milk whose reaction is not changed, not growing upon potatoes of natural acidity, not giving off indol. Old cultures have a special odor. The best culture medium consists of fresh peptonized bouillon, eight parts, and blood serum of the horse, one part.

Cultures obtained from chronic lesions in the chicken were sometimes pathogenic in the chicken, mouse, sparrow, pigeon, and rabbit. Their virulence has been very much increased. After fifteen passages through the pigeon, the inoculation being made into the lower eyelid, $\frac{1}{8}$ c.c. destroys the pigeon in fifteen to eighteen hours. With lesions of a rapid septicæmia, chickens offer much more resistance to inoculations than pigeons. The disease was also produced by cohabitation and by food and water contaminated with a virulent culture. The excrement is infectious, and from it the bacillus can be isolated. In some instances in the pigeon there was a scapulohumeral and humero-radial arthritis. The pigeon, being most susceptible, is best adapted for experimentation.

Preventive inoculations under the skin have not been successful. Guérin made the injection into the peritoneal cavity. The first injection is made with a virulent bouillon serum culture, twenty-four hours old, heated to 55° C., all the virulent agents being destroyed at this temperature; ½ c.c. is used. The second inoculation, made twelve days afterward, is similar to the first, but the culture is heated only to 50° C.; the bacillus has not entirely lost its virulence. Twelve to fifteen days after the second injection, the animal wil resist a fatal dose of a virulent culture. This procedure was applied practically with success in infected flocks. The chick to be so treated should be approaching its second month.

Guérin endeavored to produce an anti-diphtheritic serum. He immunized two horses by intravenous and intraperitoneal injections following the usual procedures in the production of anti-microbic serums. One of these horses, treatment having commenced in April, furnished in November a serum of which 4 c.c. injected subcutaneously in the pigeon enabled the animal at the end of twenty-four hours to resist a fatal quantity, ¼ c.c. of a virulent culture injected intravenously; 2 c.c. of the serum also resisted the same inoculation when made under the skin.

In serovaccination against diphtheria, as in swine plague, two inoculations are necessary at an interval of twenty-four hours; the first, made subcutaneously, consists of a dose of the serum varying according to the susceptibility of the species to the disease; the second, which is a virulent culture, is made in the manner indicated above.

The therapeutic use of the serum, which thus far has given little result, is under experimentation.—*Ann. de Med. Vet.*

ACTION OF WATER DRUNK DURING DIGESTION. Leconté experimented upon this subject in the dog, and determined the following results:

1. After a meal composed of meat or bread, with or without potatoes, the water even drunk in abundance, passes principally along the smaller curvature of the stomach without at times entirely saturating the whole of the gastric contents. After fifteen minutes all the liquid passes out of the stomach, carrying with it only a little finely-powdered material held in suspension by the gastric secretion. Even in a case of extreme thirst only a few morsels of meat were found in the intestines fifteen minutes afterward.

In the intestine the water is absorbed as rapidly as it enters; the organ is found in the same condition, whether or not the animal has received water, and the intestinal digestion is continued without any modification.

2. When the animal is fed on thin soup and then forced to drink water, the latter is added to the contents of the stomach, which becomes distended, producing malaise for a short time, and afterward surcharging the intestine.

The ingestion of liquids, according to the author, does not interfere with digestion in the dog, unless the quantity becomes large. In man, and this was the principal aim of the experiments, the results are most probably similar, and in sickness the thirst may be satisfied irrespective of the period of digestion. In gastro-intestinal affections the judicious use of water need not be withheld.—*Ann. de Med. Vet.*

Diagnosis of Foreign Bodies in the Œsophagus. The symptoms of obstruction of the œsophagus, such as loss of appetite, nausea, slobbering, tympanites, etc., are common to a number of other diseases, and may simulate a simple meteorization.

Zofir suggests the following simple procedure before using the bougie or making a manual examination of the pharynx: Give the animal about two litres of tepid water. In œsophageal obstruction the liquid will be ejected through the nostrils and the mouth. When the stenosis is incomplete or close to the stomach the stagnation of the liquid in the canal anterior to the obstruction will be noticeable.—*Rec. de Med. Vet.*

Corrosive Sublimate in Foot-and-Mouth Disease. Hirzel experimented upon seventy-three cows, twenty-five oxen, and ninety other head of cattle on a farm where the disease had existed two years before. Some of the animals therefore had acquired a certain degree of immunity, and the symptoms were benign. There was not the least improvement in the symptoms. As a preventive the intravenous injection of the bichloride was likewise without effect.

In spite of the minimum dose, the author has, in some cases, seen symptoms of mercurial poisoning, such as ptyalism and moist, serous, indurated patches, which, in the cow, were localized on the perineum, in the ox at the base of the tail, and in the calves around the mouth, head, and neck. In the young animals there were also muzzle, mouth, and nasal cavities which bled from the least friction. The nearby lymph was pulled off by the fingers, and the opening caused by this trouble was not found in animals not treated. The results seem to show that the bichloride treatment gives very little encouragement.—*Ann. de Med. Vet.*

REPORTS OF CASES.

OBSTETRICAL CASES.

By James H. Frinck, V.S.,
St. John, N. B.

I note in the reports of obstetrical cases published in
Journal from time to time that in cases of dystocia necessi
ting embryotomy more or less stress is laid upon the practice
carefully dissecting the skin from the limbs before attempt
forcible removal. I think that the practitioner who follows t
method puts a great deal of fatiguing work upon himself to v
little purpose. Perhaps the most common form of malpresentat
which is presented for treatment in the routine of practice is t
by which the fore extremities are presented, with the head a
neck toward the side. In the valuable breeding animals
attempt may be made, at retroversion, to deliver the fœtus ali
This is sometimes successful, but very often a great deal of va
able time is lost, whereby the mother and offspring are both l
The value of the fœtus in the ordinary animal in such cases is,
my way of thinking, of very little value, and should receive sc
consideration. For delivery: After placing the bedding, suppo
etc., to your satisfaction, if the animal is in the recumbent positi
tie its head securely to some fixture in the floor. Provide a sm
set of blocks or pulleys of metal—the smaller the better, if str
—one single and one double block, with a ring-bolt attachm
to fasten on the sill or post immediately behind you; a pound
two of vaseline, preferable to oil in anointing the fœtus and can
a large vessel containing a solution of bichloride of mercury, 1
500; knives, hooks, repellers, cords, sponges, and a few cl
towels. Gently draw the leg toward you until the knee is clea
the vulva, remove at the knee-joint, adjust a noose on the lo
end of the radius, secure to the pulleys. Have a retractor—m
of metal, two and a half inches wide, absolutely smooth, spatu
shaped, round at the end, bent at right angles. This is passed
and along the wall of the vagina, above your working hand.
retractor is given to an assistant, who lifts away for clear work
relaxed walls of the vagina and the large volume of loose inte
ment about the vulva; this is a great help. Slight strain being n
put upon the pulleys, the elbow-joint comes into view and rea

disarticulate it. It is no trouble now to put your running noose on the lower end of the humerus. A slight strain on the pulleys, carry your knife to the shoulder, cut into the joint, rack the strain on the pulleys a little, and this section will come away easily. You now have a clear space in which to work. If you have difficulty now at getting the head of the fœtus, on account of being placed very far back, untie the patient's head and turn her completely over. A portion of the resistance being gone, the chances are that the head of the fœtus has dropped down, and it is ready at your hand to deliver. If not, remove the other foreleg the same as the first; then there is no difficulty. In securing the head with hooks avoid the lower jaw altogether; the slightest pull on it will smash it, and then if you have any further manipulation you are apt to get your hand or arm scratched with pieces of splintered bone or vicious little loose teeth. You can always get a good grip in the orbit, and the hook will hold if it is the right shape. Not the slightest danger need be anticipated from the cavity of the scapular articulations being exposed and doing internal mischief, as it will be found that they have retracted and are well hidden beneath muscular tissue at the point of the shoulder. I have time and again removed a fœtus in this manner in ten or fifteen minutes which had received hours of toil in the earlier days of my career by the subcutaneous methods laid down in text-books. It is almost a sin to send a young man out from college without any practical education in this line of practice. He often—far too often—becomes a burden to himself and not infrequently a source of amusement to the bucolic community into which fate has sent him.

IODINE TREATMENT, TENDINOUS SYNOVIAL DILATATIONS. Labat has had much success in such synovial distentions with the following solution: Tincture of iodine, 100 g.; boiling water, 200 g.; iodide of potassium, 6 g. He prefers the animal cast, and makes two successive injections in the usual manner. The results from this treatment of thoroughpin, cysts of the back, windgalls and distentions around the knee have been much better than from blistering and cauterization.

In thirty-five cases of distentions and cysts of the back, four of the knee and fourteen windgalls, the results were satisfactory, excepting after the first injection. The resolution requires from two to five months. Cadéac also recently has recommended this treatment as almost infallible.

EDITORIALS.

EDITORIAL ETHICS.

IN the May issue of the *American Veterinary Review* a repo
is given of the recent meeting of the Alumni Association of t
New York American Veterinary College. It is stated that D
W. Horace Hoskins said, in response to a toast on "Journalism
that he hoped to see the medical periodicals eliminate the editori
page entirely, filling the journal with good original articles, a
allowing the reader to draw his own conclusions. To this sen
ment the *Review* reporter does not hesitate to take exception, f
in the next sentence he makes clear his impression that such
publication would be too dry, that many advances are brought o
in editorial discussion, etc.

Whatever one's opinion may be in regard to the retention
abolition of the editorial page, there can be no doubt that the p
vailing sentiment of readers and the ethics of journalism a
strongly opposed to mixing editorial utterances with news repor
One of the first things a reporter should learn is that he is
write reports or descriptions of things as they exist and not reco
his personal opinions.

It is clear that the *Review* is strongly in favor of editori
when the editor admits a report of a meeting in which, in effe
the reporter writes a dissenting editorial upon a remark made
response to a toast. That the editorial clause happened to be d
senting has no special bearing on the case. The question is, Is
a good plan for editors to state their personal opinions in jux
position with and evidently for the purpose of increasing
diminishing the effect of the remarks they are reporting? Is t
not a perversion and abuse of the reportorial and editorial fu
tions?

MINNEAPOLIS IN SEPTEMBER, 1902.

PLANS are rapidly going forward all over the country to ma
the coming meeting a phenomenal success. The favored railro
rates already announced for the convention have awakened inter
in many centres over the country. The JOURNAL will again

active in assisting those in the East to reach Minneapolis. It further desires that veterinarians from all over the country whose route may be via Chicago to assemble in that city on Sunday, August 31st, and go in one body by the "Burlington" route to Minneapolis. The many courtesies enjoyed at the hands of this company at Omaha and Des Moines have made it a popular line among the profession, and every agent of this well-known line has received special instructions to look after the veterinarians in September. The JOURNAL will be glad to afford any information desired, secure transportation, arrange for berths, and all else for the comfort of those contemplating attendance.

A MAGNANIMOUS GIFT.

THE Veterinary Department of the University of Pennsylvania has just been enriched by the gift to its library of the entire collection of veterinary and medical books of the late Dr. Rush Shippen Huidekoper.

Through the well-known generosity of Dr. Thomas B. Rayner, of Chestnut Hill, Philadelphia, this valuable collection has been purchased, and it has been given in the name of Moncure Robinson Rayner, a deceased son and former student of the Veterinary Department, who died while completing a course in that department. But one restriction has been placed upon this valuable collection, which is typical, indeed, of the generous character of the donor, that it shall be free to the veterinary profession for consultation and study. Such gifts to any institution are rare enough, indeed; to veterinary institutions of North America it is the second gift of its kind that we have record of, and the first one to be given by a veterinarian. The profession as a whole will be profoundly thankful for this most liberal gift, and the future profession ever grateful for the special privileges it will confer.

A. V. M. A.

MINNEAPOLIS, MINN., SEPTEMBER, 1902.

THE local committee of arrangements for the next meeting of the A. V. M. A. has been appointed, and has organized upon a somewhat new plan. A large committee was appointed, and this has been divided into several subcommittees, each one being assigned a certain portion of the work, their plans and methods be approved by the general committee. There is going to be great meeting in Minneapolis this fall. Don't forget to be the when the first gavel falls.

Dr. C. J. **Marshall**, State Secretary for Pennsylvania, is a dressing the entire State Association membership and many oth veterinarians of the State in the interests of the Minneapo meeting.

STATE BOARD OF VETERINARY EXAMINERS.

Ohio State veterinary law has been sustained by a decision the lower court, and four illegal practitioners are now under indic ment.

At the organization meeting of the New Jersey State Board Veterinary Medical Examiners, held at the State House in t city of Trenton, on May 5th, Dr. William Herbert Lowe, Paterson, was elected President; Dr. Whitfield Gray, of Newto Secretary; and Dr. T. E. Smith, of Jersey City, Treasurer.

ASSOCIATION MEETINGS.

The next regular meeting of the Veterinary Medical Associati of New Jersey will be held at Stetter's Assembly Hall, 842 Bro street, Newark, N. J., July 10, 1902. Meeting to be called 10 a. m. An interesting programme is being arranged.

NECROLOGY.

At Factoryville, on May 9th, Dr. D. C. Stanton, veterina surgeon, died after a long period of illness. Dr. Stanton was member of the Pennsylvania State Veterinary Medical Associ tion and a regular attendant at its conventions. He took active intereest in all its work and affairs.

Charles Scheile, veterinary surgeon, of Quincy, Illinois, di recently.

B. S. **Sutton**, veterinary surgeon, of Carpenteria, Californi died recently.

COMMUNICATIONS.

AN INTERESTING PECULIARITY.

PITTSFIELD, MASS., June 5, 1902.

W. HORACE HOSKINS, Editor,

DEAR SIR: A little while ago I noticed for the first time a physical peculiarity which is constant in our domesticated animals of the ox tribe—a peculiarity that, so far as I know, has not hitherto been noticed or published by anyone, and which, although perhaps only a matter of curiosity, may yet be of interest to your readers. The peculiarity to which I refer is the following:

The long hairs which form the tuft at the end of the tail of the ox (generie) are invariably twisted or curled, and this twisting takes place uniformly in one direction, viz.: from right to left, and never from left to right. These hairs are sometimes twisted up into one large rope-like curl, but more frequently they arrange themselves in a mass of curls; but, whether in one large curl or in multiple curls, the spiral arrangement is invariably in the direction indicated. Observation of many hundred heads (or tails) of cattle without finding an exception seems conclusive proof that the peculiarity is constant in the domestic ox. Further, in newborn calves as soon as the hair is dry the same twisting of the hairs at the tip of the tail is to be found, and by the time the animal is two weeks old they make a dainty little whorl covering the end of the caudal appendage.

Prototypes of this peculiarity of twisting in a definite direction are frequent in the vegetable kingdom. Thus the convolvulus, Passion flower, and French bean always twine from right to left; while the hop, black begonia, and honeysuckle constantly twine from left to right, but for these phenomena botanists have not offered any reasonable explanation.

As an explanation of the peculiarity as seen in the ox I would suggest the following: In ruminant animals, which live to a large extent on bulky food, the rumen or front stomach is extremely large, comprising three-fourths of the total size of all the abdominal contents. This stomach occupies the entire left half as well as a considerable portion of the right half of the abdominal cavity, consequently we find that the left flank in the ox tribe is considerably more prominent than the right. This is more especially noticeable after the animal has partaken of a full meal, and is readily seen in any herd of cows coming home fro pasture, the disparity in the contour of the two flanks then bein very great. Now when a cow swishes her tail, say for the dis lodgement of offending flies, she swings it up on the upper part her back, then allows it to sweep as by gravitation down over he flanks. This sweeping friction of the tail as it descends woul in the case of the left flank, tend to make it rotate from right left, and *vice versa* in sweeping over the right flank ; but th contour of the left flank being greater than that of the right, th amount of friction and rotary force imparted to the tail as it slide over it, will also be greater, and this slight influence, opera ting through countless generations of ancestors, may, accordin to the evolutionary law of alteration by environment, account fo the peculiarity as we see it to-day not only in the mature anima but also in the animal newborn. In the instance of a few buffalo which I have been able to examine I find the same arrangemen obtains. In this animal, however, the tail is quite short an incapable of reaching at all over the flanks, so that in this case th creature may have inherited the peculiarity from some race progenitors having longer tails. G. W. KINNELL.

A GREATER NEW YORK INSPECTOR'S VIEWS.

HAVING read "Columella's" article in the April number of th JOURNAL, the first thing that struck me was who is Columella Anyhow, his new and conservative plan of controlling tuberculos of cattle is an excellent one. This is a radical departure from an plan yet suggested. It is an improvement on the Bang system Denmark, which does not seem practical in this country. He everything relating to cattle and dairy interest must be conducted most places (especially those dairies on the outskirts of cities) in limited area, and conducted so as to give the most results for th least expense. Economy is the watchword in our dairies here, regar less of results, and any one locality that takes radical measures wit those dairies under their control does so at a financial and busine disadvantage to those dairies, and creating advantages for the ou side competitor serving milk in the same market without improvin the sanitary condition of the general milk-supply.

It makes an unfair business competition to the dairies that a continually losing cattle with tuberculosis, without improving th entire milk-supply or the improvement of herds from which thes dairies are supplied.

Under "Columella's" plan most of this milk from these tuberculous cows might be used in the manufacture of cheese.

What is not used this way might then be pasteurized. Pasteurized milk is not a bad milk, nor detrimental to health. It is only a poor food-supply to very young infants.

To be practical, this method of "Columella" should be a national regulation—one which would govern interstate cattle and milk-supply, and I consider it well worth the attention of our Bureau of Animal Industry. With these safeguards—a national, State, and local inspection of dairies, which could be made jointly in many cases, and much saved—we would then get nearer a pure milk-supply, and *slowly and surely* eliminate tuberculosis, and during this elimination in this way much would be saved to the Government and State and many great losses to the dairymen prevented.

It seems to me that this is the nearest we have come to a solution of this great trouble, both from a sanitary and economic standpoint, and is well worth a trial. E. B. A.

Denmark in ten years has doubled the exports of its hog products in amount and value. In 1898 this small country, which is about twice the size of New Jersey, exported 200,000,000 pounds of bacon and hams, or nearly one-third the exports of this country. This marvellous increase, like that which has made Denmark the dairy farm of Europe, is due simply and solely to the popular education which was established in Denmark about half a century ago in the shape of rural high schools, and which gave technical instruction in agriculture. The result is that the farming population in Denmark is the best educated in the world, so much better educated than our own that a comparison would be ridiculous. Instead of improving the education of its rural districts, Pennsylvania continues a common-school system under which many rural districts reduce their own taxation as fast as the expenditure of the State increases, so that there are many parts of the State in which no high schools are provided for farmers' children. As a consequence, our farmers are complaining of hard times, while those of Denmark find their fields a constant profit.

Dr. James A. Waugh, of Pittsburg, Pa., reports continued favorable results of argentum colloidale crede in purpura hemorrhagica.

COMMENCEMENT EXERCISES.

ONTARIO VETERINARY COLLEGE.

The closing exercises of the session of 1901–1902 of this college wer held in the college buildings, Temperance Street, March 27, 1902. Th Principal, Professor A. Smith, F.R C.V.S., took the chair, and with him o the platform were Mayor Howland, Profs. Mavor and Laing, of the Uni versity of Toronto; Mr. W. K. McNaught, President of the Toronto Indus trial Exhibition Association, and Dr. Duncan. Professor Smith opene the meeting by a short address, and called on Dr. Duncan to read th graduating and honor lists, also the list of prize winners.

Mayor Howland, in a short address that was received with applause b the students, gave much credit to Professor Smith for organizing the col lege and carrying it on so successfully for so many years. He also spok in laudatory terms of the veterinary profession and its benefits to the coun try at large. Professor Mavor, Professor Laing, and Mr. W. K. McNaugh also gave short addresses that were greeted with cheers by the students.

In closing the meeting Mr. Smith warmly thanked the students for th splendid picture of the graduating class and staff of the college presente to him by the students. He also remarked that two prominent member of this year's graduating class had recently seen service in South Africa and that three more of this year's graduates would probably shortly pro ceed to the seat of war, there to assist in upholding the honor of the Brit ish flag.

The following is the list of graduates and prize winners:

F. Rudolph Adams, Cardiff, Wales; Fred. W. Anderson, Buffalo, N. Y. Henry M. Armour, Warsaw, N. Y.

Harry K. Berry, Paterson, N. J.; Thomas A. Blacklock, Campbellville Christopher J. Bousfield, Toronto; Phineas Bridge, Paterson, N. J.; Walte T. Brophy, Montevideo, Minn.; Jared Burton, Wheaton, Minn.

Gilbert F. Candage, Bluehill, Maine; Joseph E. Carter, Riverhead, Long Island, N. Y.; Nels A. Christianson, Magnolia, Minn.; Matthew G. Con nolly, Sundridge; Clarence J. Cooper, Warwick, Bermuda, W. I.; Thoma F. Colling, Toronto.

James Morgan Dand, Deloraine, Man.; John B. Darling, South Peacham Vermont; Charles E. Dille, Ville Ridge, Ill.; Charles H. Doyle, Summer side, P. E. I.; Lawrence L. Doyle, Summerside, P. E. I.

Bert C. Eldredge, Tedrow, Ohio.

D. Alex. Fasken, Paris; Edward Roy Farewell, Drayton; W. Franci Forest, Hicksville, Ohio; Ralph Edward Freeman, Rockland, Maine.

William A. Gill, Verschoyle; G. Arthur Gohn, Toronto.

Charles L. Hayward, Georgetown, Ill.; Demerest T. Havens, Manasquan N. J.; George A. Harvey, Cleveland, Ohio; Joseph S. Hollingsworth, L Salle, Ill.; Robert A. Hume, Watford; Gardiner Harvey, Guelph.

Wesley I. Irwin, Little Britain.

James W. Jackson, Ventnor; T. Fred. Johnston, St. John, N. B.

T. F. Kimball, Elmore, Ohio.

John T. Leslie, Flora, Ind.

W. D. MacCormack, Enterprise; James A. McLeish, Arkona.

Edward J. Magee, Warrenburg, N. Y.; Milton M. Marshall, Cochranton, Pa.; Walter L. Mills, Warsaw, N. Y.; John P. Molloy, Rosser, Man.; H. Clifford Murray, South Glen Falls, N. Y.

William J. Neil, Omemee; R. C. M. Nyblett, Strathclair, Man.

Francis Vincent Perry, Regina, N. W. T.; Clarence Clement Petty, Hastings, Mich.; John Harland Pickering, Forest; Charles Edgar Poe, Leitersburg, Md.; Frank W. Powell, Akron, Ohio.

Charles R. Query, Jackson, Mo.

Shearman Ransom, Westholm, B. C.; Herbert E. Rea, St. Mary's; W. E. E. Robbins, Halifax, N. S.

George L. Schneider, Canton, Ohio; Omar O. Selle, Cameron, Mo.; J. Clarence, Singer, Perth Amboy, N. J.; Llewellyn Snyder, Huntsville; Chauncey C. Stevens, Yale, Mich.; A. Newton Stewart, Waterloo, Iowa; Clark A. Stewart, Waterloo, Iowa; Robert Stewart, St. John's, Newfoundland; Theodore J. Stover, Norwich; John Henry Sturm, Chilton, Wis.; Lorne Daniel Swenerton, Carberry, Man.; William F. Schwiesow, Columbus, Wis.

Arthur R. Torrie, Chatsworth.

R. Thomas Williams, Blackinton, Mass.

W. C. Van Allstyne, Red Creek, N. Y.

Disease and Treatment. Seniors: First prize, S. Ransom, silver medal; second prize, R. C. M. Nyblett; third prize, C. R. Query and J. Pickerton, equal.

Honors: Brophy, Burton, Cooper, Colling, Dand, Freeman, Johnston, G. A. Harvey, Hume, Hollingsworth, Irwin, Kimball, McLeish, Molloy, Murray, Neil, Poe, Powell, Schwiesow, Schneider, O. O. Selle, C. Stevens, Stover, Sturm, Van Allstyne.

Materia Medica. Seniors: First prize, J. H. Pickering; second prize, E. E. Robbins; third prize, J. A. McLeish.

Honors: Adams, Bowsfield, Blacklock, Colling, Candage, Connolly, Dand, Farewell, Freeman, Forest, Hume, G. A. Harvey, Hollingsworth, Murray, Neil, Nyblett, Ransom, C. A. Stewart, Singer, Stover, Sturm, Van Allstyne.

Chemistry. Seniors: First prize, J. H. Pickering; second prize, S. Ransom; third prize, R. M. Nyblètt.

Honors: Adams, Armour, Burton, Dand, Farewell, G. A. Harvey, Jackson, Murray, Singer, Williams.

Pathology. Seniors: First prize, S. Ransom; second prize, J. H. Pickering; third prize, R. M. Nyblett.

Honors: C. J. Bousfield, T. A. Blacklock, P. Bridge, T. Colling, P. Crerar, J. B. Darling, J. M. Dand, E. Farewell, D. T. Havens, J. S. Hollingsworth, R. A. Hume, G. A. Harvey, J. A. McLeish, F. P. Molloy, E. E. Robbins, L. Swenerton, C. A. Stewart, T. Stover, O. O. Selle, C. Singer, C. C. Stevens, A. Torrie, W. C. Van Allstyne, J. E. Wurm.

Physiology. Seniors: First prize, T. J. Stover; second prize, R. C. M. Nyblett; third prize, E. E. Robbins.

Honors: Armour, Adams, Brophy, Connolly, Dand, G. A. Harvey, McLeish, Molloy, Pickering, Ransom, Wurm, Williams.

Anatomy. Seniors: E. E. Robbins, first prize, silver medal; R. M. Nyblett, second prize; W. C. Van Allstyne, third prize.

Honors: H. W. Armour, Jared Burton, T. A. Blacklock, H. Berry, C. J. Bousfield, G. F. Candage, P. Crerar, J. M. Dand, J. B. Darling, R. E. Freeman, G. A. Harvey, J. S. Hollingsworth, R. A. Hume, J. W. Jackson, J. P. Molloy, H. C. Murray, J. A. McLeish, W. J. Neil, F. W. Powell, J. H. Pickering, C. R. Query, S. Ransom, O. O. Selle, C. Stevens, T. J. Stover, W. T. Schwiesow, A. D. Swenerton, G. L. Schneider, J. E. Wurm, R. T. Williams.

Entozoa. Seniors: G. A. Harvey, prize.

Honors: T. A. Blacklock, Jared Burton, N. A. Christianson, J. M. Dand, C. H. Doyle, E. R. Farewell, J. W. Jackson, Wesley Irwin, T. F. Kimball, E. J. Magee, H. C. Murray, James I. McLeish, R. M. Nyblett, J. H. Pickering, E. E. Robbins, S. Ransom, W. T. Schwiesow, L. D. Swenerton, A. P. Torrie, W. C. Van Allstyne, J. E. Wurm.

Dissected Specimens. Gold medal given by the Toronto Industrial Association, awarded to Jared Burton; second prize, F. W. Powell.

Best General Examination. Gold medal given by the Ontario Veterinary Association, awarded to R. M. Nyblett.

Honors: J. M. Dand, R. E. Freeman, G. A. Harvey, J. H. Pickering, C. R. Query, E. E. Robbins, S. Ransom.

Primary Examinations. Anatomy: W. G. Chrisman, P. Crerar, F. J. Delaine, E. L. Fryer, H. W. Nobles, W. Thompson, J. E. Wurm.

Materia Medica: E. L. Fryer, M. S. Suttle, W. Thompson, J. E. Wurm.

Disease and Treatment. Juniors: First prize, C. B. Kern; second prize, F. Lambie; third prize, J. H. Part, E. H. Ives, C. A. Leslie, equal.

Honors: Bauer, Brenton, Busselle, Bowes, Chamberlain, Chorlton, Coates, Crawford, Drew, Fawcett, Fernandez, Fraser, Gillan, Gondey, Haffer, Harburn, Harris, Hartman, Henderson, Lee, Archie McMillan, McLevy, Mann, Meany, Mitchell, Monell, Oliver, Owens, Reinhardt, Richard, Rusk, Schweinler, Sprunger, Strive, Sykes, H. J. Taylor, J. C. Taylor, L. Thurston, Tomlinson, Van Vlaadern, Walker, Webb, Wilson, Williams.

Anatomy. Juniors: First prize, silver medal, C. A. Leslie; second prize, C. B. Kirn; third prize, T. B. Harris.

Honors: Willis L. Brenton, A. W. Busselle, G. A. Coates, J. T. Chorlton, A. H. Chamberlain, D. H. Chase, J. E. Crawford, D. B. Frazer, R. H. Gondey, J. W. Haffer, E. H. Ives, F. Lambie, L. G. Mitchell, W. G. McLevy, B. A. Owens, J. H. Part, Thos. Quinn, J. C. Rusk, E. Sutter, E. R. Struve, T. O. Sykes, H. A. Taylor, J. R. Tomlinson, E. A. Watson, Howard Williams, G. C. Webb.

Physiology. Juniors: First prize, silver medal, J. H. Part; second prize, C. B. Kern; third prize, F. B. Lambie.

Honors: Busselle, Crawford, Frazer, Hartman, Henderson, Ives, Leslie, H. J. Taylor, E. A. Watson.

Chemistry. Juniors: J. H. Part, first prize; F. B. Lambie, second prize; H. J. Taylor, third prize.

Honors: Busselle, Bulgin, Crawford, Coates, Chamberlain, Drew, Fernandez, Flowers, Fraser, Henderson, Ives, Leslie, Madill, Alexander McMillan, Vincente Ocampo, Sibley, Sykes, Walker, Watson.

Pathology. Juniors: T. B. Lambie, first prize; J. H. Part, second prize; C. A. Leslie, third prize.

Honors: G. Bulgin, W. L. Brenton, T. Bowes, A. W. Busselle, A. Chamberlain, J. Crawford, G. A. Coates, A. P. Drew, R. G. Flowers, A. Fernandez, D. Fraser, R. H. Gondey, H. Graham, H. Houze, W. Hartman, J. Haffer, W. Henderson, T. B. Harris, E. Ives, C. B. Kern, W. J. Lee, Alexander McMillan, R. S. Mack, Archie McMillan, Wm. Madill, T. J. Mitchell, J. K. Mann, B. Owens, L. Ocampo, E. Pallister, T. Quinn, W. H. Russell, T. Richards, A. A. Reinheardt, J. Rusk, W. A. Sparling, E. Struve, T. O. Sykes, H. W. Scheurer, F. Schweinler, R. Sprunger, G. R. Tomlinson, H. J. Taylor, S. West, H. Williams, G. C. Webb, W. M. Walker, E. Watson, C. Van Vlaanderen.

CHICAGO VETERINARY COLLEGE.

The annual banquet given to the Faculty and students by the Trustees of the Chicago Veterinary College was held at the Sherman House, Chicago, on March 13, 1902. Prof. A. H. Baker presided. Prof. L. A. Merillat acted as toastmaster, and the programme was very elaborate. Mr. W. F. Hoehner, senior student, responded to the toast of "The Future of the Profession." Mr. E. L. Lewis, junior student, responded to the toast "Phases of College Life," and Mr. E. A. Rein, freshman, to the toast "Veterinary Education from the Stand-point of a Freshman." Musical numbers were furnished by the class quartette—Messrs. Hisgen, Parks, Perkins, and Axby—consisting of songs, piano selections, etc. Numerous toasts were responded to by the different members of the Faculty.

Commencement Exercises.

The eighteenth annual commencement exercises of the Chicago Veterinary College were held at the Chicago Auditorum on Friday afternoon, March 28, 1902. Numerous friends of the graduating class and the Faculty were present. Prof. Joseph Hughes presided, and, addressing the class, stated that the session concluded was one of the most successful in the history of the college, the number of matriculates being 164. He said that in the class of this year, besides the students who have taken the complete course at this school, there were graduates and advanced students from six other colleges, and this, naturally giving rise to more or less friendly competition, proved a decided stimulus to the class as a whole in the pursuit of their studies. He congratulated them on their splendid attainments, whether judging them from their ordinary scholastic education or from the amount of technical veterinary knowledge which they possessed. Concluding, he expressed his admiration—an admiration shared by every member of the Faculty—of the deportment and general conduct of the class during their attendance. On behalf of the Trustees, he thanked the Faculty for the highly efficient manner in which they conducted their various classes, directly contributing to the success of the session. He then announced the names of the gentlemen who successfully passed the final examination, as follows:

B. F. Barber, Glidden, Iowa; C. Baynes, Jersey City, N. J.; J. W. Beckwith, Shullsburg, Wis.; R. J. W. Briggs, Garner, Iowa; W. W. Bronson, Wyoming, Iowa; J. W. Bunker, New Providence, Iowa; L. C. Butterfield, Marseilles, Ill.; F. W. Brewer, Indianapolis, Ind.; E. G. Cluts, Canton, Ill.; Charles J. Dawdy, Greenville, Ill.; H. Devitt, Chicago, Ill.; L. L. Diller, Marshalltown, Iowa; C. E. Dornheim, Pomfret Centre, Conn.; F.

Eckert, Reeseville, Wis.; J. E. Frank, Sandyville, Iowa; G. E. Frye, Fort Wayne, Ind.; W. C. Giller, Roodhouse, Ill.; F. W. Goodsall, Ottawa, Ill.; F. A. Goodbody, Chicago, Ill.; John P. Graff, New Ulm, Minn.; H. H. Glenn, Verona, Ill.; J. L. Halloran, Stapleton, N. Y.; J. H. Hanna, Burlington, Kas.; W. L. Hyatt, Erie, Kas.; N. W. Hillock, Columbus, Ohio; A. C. Howe, Des Moines, Iowa; W. F. Hoehner, Belleville, Ill.; J. K. Jameson, Paris, Ky.; E. C. Joss, Fairview, Kas.; G. A. Kay, Minden, Iowa; W. J. Kirk, Sharon, Pa.; G. W. Knorr, Louisville, Ky.; F. A. Laird, Springfield, Ill.; F. Lett, Jr., Paris Crossing, Ind.; W. H. Luther, Boonville, Ind.; R. C. Lew, Highland, Ill.; C. D. Maulfair, Magnolia, Ill.; R. Mazza, Petaluma, Cal.; A. F. Nelson, Jamestown, Ind.; R. E. Nesbitt, Maroa, Ill.; C. L. Passmore, Huntley, Ill.; P. J. Purcell, Bradford, Pa.; G. A. Rohde, Flint, Mich.; C. R. Richards, Victoria, B. C.; T. A. Schneekloth, Pepin, Wis.; F. K. Scott, Terra Haute, Ill.; C. O. Seaberg, Crystal Falls, Mich.; C. H. Spangler, Lockport, Ill.; M. A. Stewart, Richmond, Ind.; S. P. Talbot, Ames, Iowa; C. D. Tuttle, Canton, S D.; F. H. Thompson, Woolley, Wash.; G. S. Throp, Palestine, Ohio; C. O. Van Winkle, Salem, Iowa; C. A. Webber, Rochester, N. Y.; L. E. Warner, Aurora, Ill.

Of this number the following gentlemen graduated with honors: B. F. Barber, F. W. Brewer, W. L. Hyatt, E. C. Joss, W. J. Kirk, George W. Knorr, W. H. Luther, A. F. Nelson, C. R. Richards, C. O. Van Winkle, L. E. Warner, C. H. Spangler, C. A. Webber.

Dr. Edward C. Joss obtained the gold medal for the highest general average; Dr. C. R. Richards, the gold medal for the highest standing in equine theory and practice; Dr. George W. Knorr, the gold medal for the highest standing in anatomy; Dr. C. O. Van Winkle received the gold medal for the highest standing in cattle pathology. Dr. C. R. Richards also received the prize for the best examination in surgery; Dr. E. C. Joss, prizes for the best examinations in meat-inspection and helminthology; Dr. C. A. Webber, the prize for the highest standing in pathology and bacteriology; Dr. W. H. Luther, the prize in materia medica; Dr. C. H. Spangler, the prize in lameness; Dr. J. Frank, the prize for the highest average in physiology; Dr. T. A. Schneekloth, the prize for the highest standing in hygiene; Dr. C. J. Dawdy, the prize for the highest average in chemistry.

The degree of Doctor of Comparative Medicine (M.D.C.) was then conferred on the class by Prof. A. H. Baker, and the diplomas were distributed by Prof. E. L. Quitman.

Following the distribution of diplomas came the awarding of medals and prizes, after which the valedictory was delivered by Dr. J. H. Hanna, and was heartily applauded.

Prof. A. H. Baker delivered the doctorate, wishing the students God-speed, and alluded to the fine prospects of the veterinary profession as evinced by the numberless requests from all parts of the country for veterinary surgeons received during the past session, as well as by the large number of students who registered at the Chicago Veterinary College; and giving them advice and encouragement, and also impressing the fact on the graduating class to always consider every member of the Faculty as their friend, and not to hesitate, whenever advice was necessary, to turn to their alma mater.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

THE annual meeting was opened at Odd Fellows' Temple, Philadelphia, Pa., on March 4, 1902. The meeting was called to order by the President, Dr. Harger, at 10.30 A.M. The following members were present: Drs. W. G. Benner, Doylestown; John L. Bradley, Mercersburg; J. F. Butterfield, South Montrose; M. J. Chrisman, Sugar Grove; M. J. Collins, Myerstown; Jacob Helmer, Scranton; J. C. Kingsland, Canton; James R. Mahaffey, Wilmington, Del.; S. W. Mathews, Concordville, Pa.; J. C. McNeil, Pittsburg; J. C. Michener, Colmar; Otto Noack, Reading; J. H. Oyler, Harrisburg; John B. Raynor, Milestown; Thomas B. Rayner, Chestnut Hill; W. L. Rhoads, Lansdowne; W. H. Ridge, Trevose; J. T. Ross, Frankford; J. W. Sallade, Auburn; A. W. Weir, Greenville.

The Philadelphia members present were J. M. Carter, H. B. Cox, H. B. Felton, J. T. Ferley, S. J. J. Harger, W. Horace Hoskins, J. D. Houldsworth, C. J. Marshall, James T. MacAnulty, Leonard Pearson, E. M. Ranck.

The visitors present were Drs. L. D. Horner, Woodstown, N. J.; F. H. Schneider, Ninth and Tioga Streets, Philadelphia; Charles Lenhart, Dover; S. H. Johnson, W. D. Martin, and George Fuller, of Philadelphia; also Messrs. F. H. Bradley, A. H. Cheney, G. A. Dicks, G. V. Foster, W. D. Fuller, G. H. Hart, J. H. Morse, and M. H. White, Jr., students at the Veterinary Department of the University of Pennsylvania; also Messrs. George Snyder and George Teufel, Philadelphia, Pa.

The minutes of the previous meeting were read and approved. President Harger delivered his annual address, after which the following officers were elected for the ensuing year:

President, W. L. Rhoads, Lansdowne, Pa.; First Vice-President, J. F. Butterfield, South Montrose; Second Vice-President, A. W. Weir, Greenville; Third Vice-President, W. G. Benner, Doylestown, Pa.; Treasurer, Francis Bridge, No. 228 North Fifty-third Street, Philadelpha; Recording Secretary, C. J. Marshall, No. 2004 Pine Street, Philadelphia; Corresponding Secretary, E. M. Ranck, No. 422 N. Forty-first Street, Philadelphia; Board of Trustees—Leonard Pearson, Thirty-sixth and Spruce Streets, Philadelphia; W. H. Hoskins, No. 3452 Ludlow Street, Philadelphia; Thomas B. Rayner, Chestnut Hill, Philadelphia; W. H. Ridge, Trevose; N. Rectenwald, No. 89 Washington Avenue, Pittsburg.

A recess was then given for the collection of dues. After adjournment a report of the Board of Trustees was called for. Dr. Pearson requested that his report be postponed. Dr. Harger requested leave of absence for an hour, and Dr. J. C. Michener took the President's chair during his absence. Reports of County Secretaries were then read by the Corresponding Secretary, Dr. Ranck. A report of the delegates to the American Veterinary Medical Association meeting in September last was given by Dr. Hoskins. Drs. Hoskins and Noack urged dropping of the clinics at the American Veterinary Medical Association meetings. Veterinary

Medical Association of New Jersey: Dr. Pearson made a few appropriate remarks. New York State Veterinary Medical Society: Dr. Carter was called. He did not attend the meeting, but reported that the late Dr. R. S. Huidekoper had represented the Pennsylvania veterinarians at the meeting at Ithaca. Dr. Ranck spoke of the Dr. Morris affair at Atlantic City and what had been done by the American Veterinary Medical Association, and also what had not been done by the New York State Association, and asked Dr. Hoskins for an explanation. Dr. Hoskins reported that Dr. Huidekoper attended this meeting, and said nothing definite was done. The Association dillydallied with the subject, and the main effort seemed to be to avoid the issue, and the question was laid over for one year. He feels the Association should be censured for its cowardice, and will introduce a resolution later to this effect. Keystone Veterinary Medical Association: Dr. Ridge and Dr. Marshall spoke of the good work this Association was doing, and urged more frequent attendance of the local Association by the local men. Schuylkill Valley Veterinary Medical Association: Dr. Schneider was called and gave the following report: "This Association was formed six years ago. It now has thirty active members, and meets quarterly. The last meeting was held last December. Some very good papers were read." Dr. Pearson thought that many other veterinarians would attend these meetings if they were invited. He suggested that the JOURNAL would be glad to print notice if received in time. Dr. Noack said that they used to send invitations broadly; but as few accepted them they had discontinued it. Dr. Ranck said that a secretary is not excusable if every veterinarian, every newspaper and journal of note does not receive notice, even if they do not attend or send representatives. He thought we should be generous with our invitations. Dr. Noack thought it an unnecessary expense to send invitations to those who would not attend. Dr. Ranck suggested that the proceedings should be printed. Dr. Noack said that reports were sent to Dr. Hoskins and not answered. Dr. Hoskins thought not, and was defended by Dr. Ridge, who said that Dr. Hoskins always answers letters promptly.

The Treasurer's report of the Pennsylvania State Veterinary Medical Association was read by Dr. Bridge.

Dr. Hoskins thought that the condition of our treasury is open to improvement. He thought the money should be used for the benefit of our Association, and urged that it should be distributed for the benefit of our profession throughout the State in a better enforcement of the State veterinary laws and in creating a stronger public sentiment for veterinary representation on all Boards of Health.

REPORTS OF COMMITTEES.

Dr. Ranck read a report from Dr. Sallade, of the Committee on Legislation. He suggested that all veterinarians should register every three to five years. Dr. Noack said that a bill was introduced by the Schuylkill Valley Veterinary Medical Association; that the laws of 1889 were faulty. The new bill was to amend the old one of 1889, whereby all veterinarians would be required to register again. He read the proposed amendment. Dr. Hoskins read a report of this committee, and urged the importance of re-registration. By a re-registration money might be obtained for carrying on the work of prosecuting illegal practitioners. Three prothonotaries have been called before the courts to show that certain unwarranted registrations had been made by them. Two men are now serving time and two others are being prosecuted. He hoped that Dr. Noack's paper would be presented to our Committee on Legislation, and that some action would be taken by this Association. Letters are being sent to the prothonotaries of different counties to have the lists of registration verified. Dr. Pearson mentioned the act passed by the last Legislature to provide for the milk-supply of cities of the second class. He thought the trend of this bill was good, but a little too bold. This law has not been put into effect by a single city. The authorities are afraid to put it into operation. It was drawn up by physicians of Pittsburg who lack practical experience. This shows the need of proposed legislation being thoroughly considered by men of practical experience prior to being offered to legislative bodies.

COMMITTEE ON INTELLIGENCE AND EDUCATION.

No members of this committee being present, the work was laid over until later. Dr. Pearson thought it was too important to pass over this subject, and offered a verbal report. He described the changes being made at the Veterinary Department of the University of Pennsylvania. The reasons for the changes were twofold: First, the growth of the University of Pennsylvania was so great that our school was being hidden; second, the medical department wanted a somewhat quiet and retired place for a $600,000 laboratory building. The architects are now working on the plans for our new building, which will be a three-story building, where plenty of room will be obtained, and one suitable room for the use of our Association. The plans are for the best-equipped school in any English-speaking country.

COMMITTEE ON SANITARY SCIENCE AND POLICE.

Passed over for the present.

COMMITTEE ON ANIMAL HUSBANDRY.

Dr. Ridge was called as a member of this committee, but made no remarks. Dr. Pearson spoke of the bill before Congress for the purpose of certifying to the qualifications of stallions suitable to get cavalry horses, this committee to be composed of practical horsemen. The general purpose of the bill is to be similar to the Imperial Horsebreeders' Association of Europe. The trend of the bill will be useful if it becomes a law. Our horses are, generally speaking, becoming nondescripts, and we should breed for some specific type. The object of this bill is to encourage the breeding of a class of horses suitable for cavalry uses. Older countries have found this plan necessary. Similar commissions are bringing them good results. A weak point of the bill as it now stands is that it is composed of six officers and twelve practical horsemen, but no veterinarians. We feel that our profession should be represented. As the veterinarian's training and experience are essential factors and a safeguard to this line of work, we should spare no effort in making this fact patent to those concerned before it is too late. The matter is before a committee in Congress. Wadsworth, of New York, is chairman of the committee. There is one member from Pennsylvania on this committee. Dr. Ridge moved that the subject be referred to the Committee on Resolutions. Dr. Rhoads offered an amendment to have the subject widened, if possible, to make it more general. This ended the afternoon session.

After the banquet the President called the meeting to order at 8 P. M. Dr. Marshall made a report for the Committee on Sanitary Science and Police, which was adopted as read. Dr. J. C. Michener made a report for the Committee on Animal Industry, which was filed with the Secretary. Dr. Thomas B. Rayner discussed the paper, and cited a case where a whole herd was tested with tuberculin, and every animal reacted and was sold clandestinely in Bucks County. As the former owner was a millionaire, he did not see that he was excusable for this unappreciated philanthropy. Dr. Pearson spoke of the difficulty of estimating the value of animals in the United States, and explained why there was so much difference in the reports given out by the Bureau of Animal Industry and the one published by Sequard Powers, of Chicago, and the Census Bureau. This subject was discussed by several members, and it was decided that the *American Agriculturist* gave the most satisfactory statistics. He thought there was a lack of horses in the United States. There did not seem to be enough to meet the demand. The report from the Bureau of Animal Industry for 1900 has been challenged, because of the difference of opinion between the Bureau of Animal Industry and the Superintendent of the Census. Dr. McNeil, of Pittsburg, in speaking of the average price of working horses said that he did not believe they could be bought for $55 a head. They are not as cheap as formerly. He thought there was an advance of $20 or $30 a head on carload lots more than last year. Dr. Hoskins explained why the average price was so low. In making up the average price of horses, bronchos and cheap Texan horses are figured in this average. He thought there was no doubt but what the price of good horses is higher than it had been for years. He preferred to believe the statement made by the Census Bureau to that made by the Department of Agriculture. The vast numbers of horses sent to South Africa has taken out the cheaper class. Dr. McNeil said that the Texan pony is nearly extinct. The same is true of the native cattle of Texas, as Texas cattle are mixed with Northern cattle and are becoming larger and more suitable for beef purposes. Dr. Rhoads moved that this report be accepted as read, which met with the approval of the Association.

The next subject was the admission of new members. There was but one candidate. Dr. Hoskins, as a member of the Board of Trustees, thought that one application is a small quota for the Board, and that we should make greater efforts to bring in new members. Dr. Felton agreed with Dr. Hoskins. George S. Fuller, of Philadelphia, was elected as a member of the Association by acclamation, and was introduced by President Harger, and made a few appropriate remarks.

The next in order was new business. Dr. Ranck reported and read a letter from Dr. Bittles, who paid dues to March, 1902, and requested that his name be dropped from the list. Dr. Pearson moved that the letter be reported to the Board of Trustees. Dr. Rhoads spoke of the vast amount of work which devolves on the Corresponding Secretary, and proposed that

$50 be appropriated to the Corresponding Secretary for his work. Dr. Hoskins spoke in favor of the motion. He thought that a certain sum of money should be set aside for the use of the Corresponding Secretary. The motion was adopted.

Dr. Rhoads advocated the creation of a Press Committee of seven members, and offered a motion to that effect. He thought that they should be appointed by the President, so that they can be chosen from the sections of the State where the meeting is to be held. Dr. Noack thought that cartoons and ridiculous-appearing pictures should not accompany the reports of our Association, as has been done in times past. Dr. Hoskins thought that Dr. Noack's objections are one reason for having a Press Committee, and that with such a committee we could put such subjects as we wish before the public.

Dr. Hoskins thought that our State meat-inspection is the greatest farce of modern times, and believed that under the present system we should recommend Western dressed meats in preference to our city dressed meats, and suggested this subject for the consideration of the Press Committee. This is a subject to which ordinary newspaper correspondence cannot do justice. Dr. Williams agreed with the other speakers, but thought that it was difficult to get any satisfaction from the present administration or from the newspapers.

Dr. Ranck then read an application from Dr. H. B. Cox, of Philadelphia, who was elected to membership.

In reference to meat-inspection, Dr. Pearson thought that influence may defeat any recommendation we may make, because the city officials fear that a large sum of money would be necessary to carry on this work. If a tuberculous case is condemned it is for the use of the public, and the public should help to bear some of the loss. Would it not be better to establish a public fund and partly remunerate the loss? It might come from the State or counties or cities. Under the present appropriation it is not possible for the State to pay for all tuberculous animals. If this could be done Dr. Pearson thought the butcher would hail the meat-inspection service, because then the condemned animal would not be an entire loss to him, as it is at the present time. Dr. McNeil asked how much it would cost the State to pay for the cases during the past year. Dr. Pearson said that it could not be answered accurately, as it would not be necessary to have all tuberculous meat condemned. Dr. Hoskins said under the present system of meat-inspection that after 2 P. M. the Federal inspection is declared off, and there was no inspection for the balance of the day. The suspicious cases are kept by the butchers and dressed during the time of no inspection. The greatest opposition he encountered in his late mayoralty campaign was because of his opinion of the city meat-inspection. Dr. Michener recommended that Dr. Pearson's plans be advocated by utilizing in some way the reacting animals. Local butchers are often caught with tuberculous cattle, and these losses are dropped back to the farmer. Some provision should be made to overcome this trouble, but the only remedy is an appropriation of more money to carry on this work.

Dr. McNeil recommended that a committee of five be appointed for the purpose of devising a better system of meat and milk-inspection. Dr. Ranck suggested that seven would be a better number. This was accepted by Dr. McNeil. He thought it would cost Philadelphia $400,000 a year to carry on a proper meat- and milk-inspection. Dr. Ranck asked if the work carried on by Dr. McNeil's proposed committee would not properly fall to our new Press Committee? Dr. Rhoads seconded the motion, which was adopted.

UNFINISHED BUSINESS.

Dr. Rhoads asked for an explanation of what had been done with the money appropriated by the Association last year. Dr. Hoskins said, in answer, that the $200 appropriated last year has not yet been touched, owing to the unfair statements made by certain members at that time. The meeting was adjourned at 9.30 P. M., to meet at 10 A. M. the next day. Before adjournment Dr. Rhoads spoke about the remarks made by him last year in reference to this appropriation. He still believes, as he did at that time, that it is proper to appropriate the money to be used by the Examining Board, but objected to the way in which the motion was carried out.

WEDNESDAY, MARCH 5, 1902.

The meeting was called to order by President Harger at 10.30 A. M. Among the letters read by Dr. Ranck was a request to be dropped from membership. It was referred to the Board of Censors. Dr. Jobson read a report from the Committee on Animal Husbandry. The report was filed with the Secretary. A report from Dauphin County by Clinton F. Keiter, and one from Venango County by S. J. Swift were read. Dr. Jacob Helmer read a very carefully prepared report as Chairman of the Committee on Intelligence and Education. This is one of the most thorough and complete reports ever made by this committee. Dr. Raynor made a motion, which was unanimously adopted, that a vote of thanks be extended to Dr. Helmer for his excellent report. Dr. Hoskins moved that a permanent Committee on Membership be appointed, which was carried out. Dr. Felton, in discussing Dr. Helmer's report, wanted to bring special attention to the report gotten out by Brimhall and Wilson, of Minnesota, on the subject of "Hemorrhagic Septicæmia." He also spoke in favor of having a permanent Committee on Membership.

Dr. Remington, a representative of E. R. Squibb & Son, of New York, wished to explain to the Association the advantages of using acetic-acid preparations. Some of the members objected, on the ground that it would be establishing a precedent to allow instrument makers and drug firms to present subjects of this kind to the Association. After a thorough discussion of the subject by the members it was decided that it was for the advantage of our members to have an opportunity to learn of the best forms of drugs and the most useful instruments; consequently Dr. Remington was given the floor, and described fully the advantages to be derived from acetic-acid preparations; that they would be cheaper for our use and fully as reliable as the alcoholic extracts that are universally used at present. Dr. Helmer, of Scranton, asked Dr. Remington the prices of some of the acetic-acid preparations, and claimed that he had not found them to be any cheaper than the ordinary preparations, and he also objected to their use on account of the smell.

PAPERS.

Dr. J. F. Butterfield, of Montrose, read a paper on the subject of "Calculi." His paper was thoroughly discussed by Drs. Helmer, Harger, Rayner, Felton, and others. Dr. Helmer moved that a vote of thanks be given Dr. Butterfield for his valuable paper. The motion was carried.

Owing to the absence of Dr. Philips, his paper on the subject of "Abortion" was read by Dr. Ranck. Dr. Ridge, in discussing this paper, thought that the subject was a very important one. Many farmers are discouraged on account of this trouble in their herds. He advised the use of a subcutaneous injection of a 5 per cent. carbolic-acid solution, 1½ drachms for a dose, and a thorough disinfection of the stables, premises, animals, and isolation of the cows that abort. He finds that with the most rigid treatment he is often unable to check the trouble. The subject was also discussed by Drs. Eves, Benner, Hoskins, Michener, and Pearson. Dr. Pearson thought that the difficulty in treating this trouble is due to the fact that the origin of the disease has not yet been discovered. The infection seems to be carried by the bull. He thought that the carbolic-acid treatment is of very little use, and that the most satisfactory treatment is obtained by the application of local antiseptics to the genito-urinary tract of both bulls and cows. Many cows acquire an immunity to this trouble in two or three years. Nutrition of the animal seems to be an important factor in the progress of this trouble. Dr. Michener said that the cows before aborting show symptoms of uneasiness, and if watched carefully by the owner they can be picked out from the herd. He recommended giving 20 drops of the tincture of aconite every two hours until the symptoms abate. Follow this by 25 drops two or three times a day after the first day. In a few cases they lose the calf. Dr. Ridge differed with Dr. Michener, and said that no premonitory symptoms can be discovered. Dr. Helmer spoke of the difficulty in isolating cases of this kind, and thought our treatment would be much easier if sheds or suitable quarters could be provided. He believed thoroughly in isolation, antiseptics, and disinfection, and believed also that this form of treatment should not be entrusted entirely to the owners, as they are often not competent to carry out the work properly. Dr. McNeil reported cases of abortion in a brood mare which occurred three times in succession. He diagnosed the case as endometritis and treated her with iodine. She was bred afterward and gave birth to a healthy foal. He gave 1½ drachms of the undiluted tincture of iodine once each week for a month.

Secretary Ranck read Dr. Charles W. Boyd's paper on "Rupture of the Flexor Tendons as a Complication of Azoturia." His paper was discussed by Drs. Eves and Michener. Dr. Martein spoke of a similar case which was complicated with osteoporosis. Dr. Carter cited a similar case. Dr. Eves thought it rather doubtful that cases can contract azoturia if they have osteoporosis. He thought their nutrition and condition is not usually such as to predispose to azoturia.

In the paper by Dr. H. P. Eves, of Wilmington—"Peculiar Symptoms Attending Certain Forms of Colic"—he spoke especially of the symptoms noted by the essayist and a few other practitioners, of the peculiar squeaking of the joints in indigestion colic. He said it affects all the joints in the body, and that it resembles the cracking of the joints in the hands of men. Dr. Helmer said that he has observed this condition in horses that are neither sick nor lame. Dr. Eves said that this condition is not noticed in all cases of impaction colic, but in the cases which he has observed it the creaking of the joints ceases when the case recovers from the colic. President Harger suggested to Dr. Eves to study this subject more fully and report to our meeting at some future time.

Dr. James T. Ross spoke of the good results he has obtained in bleeding cows that would not get in calf. He removes six or seven quarts of blood.

Adjourned for lunch at 1.30 P. M.

The meeting was re-convened at 2.30 P. M. Dr. James Mahaffey's paper was the first on the programme. His subject was "Azoturia." His paper was well prepared, and excited an interesting discussion on the subject. Dr. Thomas B. Rayner believes that the treatment of azoturia consists in its prevention. He advises his clients to sit on a fence and read a newspaper as soon as the symptoms of azoturia appear. Dr. Ridge agreed with Dr. Rayner's ideas in reference to resting the animal as soon as the first symptoms are noticed. Dr. Benner said that the man who tries to imitate nature is the most successful, and spoke of the fact that animals in pasture are inclined to rest or stand still rather than to move about after such trouble. He agreed with Drs. Rayner and Ridge. Dr. McNeil noticed that most cases occur in animals which have stood still for two or three days. Dr. Mahaffey asked why it is that this disease occurs oftener in winter than in summer, and thought that the cause must be due to chill. Dr. Eves thought that the reason for this is that horses do not stand still in the summer; if not working they are fighting flies or moving about. Dr. McNeil thought that profuse sweating in the summer also helps to prevent this trouble; also that horses do not drink as much water in winter as in summer. Dr. Benner said that one of the worst cases he ever had was in summer. Dr. Michener thought azoturia is caused by coagulation of the blood, and that exercise is the best treatment. Dr. Weir believed that the trouble in his part of the country during the past winter in this line was due to the feeding of too much corn. Dr. Helmer claimed that there are two varieties of azoturia; the one in the country is much less severe than the form usually seen in the cities. Dr. Fuller thought that food does not play so important a part as exercise, and recommends nitrate of potash in small doses twice a week as a preventive.

"Municipal Milk-inspection," by Dr. J. M. Carter. Dr. Ridge agreed with the essayist from the veterinarian's point of view, but from a producer's stand-point felt that it was entirely too finely drawn, and would recommend that the Association adopt a happy medium in treating this subject. Dr. Mahaffey thought that the essayist exaggerated this subject. Dr. Williams thought that the paper was too close to the facts as they exist, and felt that it would be safe to discuss this subject among ourselves in the same manner as the essayist has treated it; but in discussing it publicly he thought it preferable to keep on neutral grounds. Dr. Michener thought Dr. Carter did not exaggerate the subject. He thought if anything the conditions are worse than he described. He described many disgusting conditions that he had met in his experience, and thought that strong remedies should be applied to overcome the present system of handling milk. Dr. Eves was in favor of making this subject public, so that everybody can know the true facts in the case. Dr. Helmer said that it was difficult to prevent by legislation outbreaks of contagious diseases due to contamination of the milk-supply, but thought that the public should be protected as much as possible from the dangers of handling milk in a careless way. Dr. Butterfield considers the conditions for handling milk are much better than they were a few years ago, but that there is yet much chance for improvement among the ordinary milk dealers and farmers. Dr. Rhoads finds that conditions have improved very much in Chester County in the past few years, but many stables are yet so filthy that it is difficult to treat cases in them without becoming contaminated with stable filth.

The next was a paper by Dr. Pearson on the subject of "Assertions Made by Professor Koch in London at the International Congress on Tuberculosis." A vote of thanks was extended Dr. Pearson for his interesting paper on the subject.

The next business was the adoption of resolutions.

Dr. Pearson moved that Dr. Rhoads be appointed archivist, which motion was put and carried.

Dr. Rhoads made a motion, which was carried, that the selection of a meeting place be left to the Board of Trustees. He also moved that a renewal of the appropriation of $200 for the State Examining Board be granted. This was carried without debate.

Dr. Pearson moved that a rising vote of thanks be extended the outgoing officers for their efficient work.

Next in order was the seating of the new officers, after which the Association adjourned to meet in September.

C. J. MARSHALL,
Recording Secretary.

The following resolutions were adopted at the annual meeting of the Pennsylvania State Veterinary Medical Association, March 4 and 5, 1902:

NATIONAL HORSE BREEDING COMMISSION.

WHEREAS, It is proposed to erect a National Horsebreeding Commission for the purpose of encouraging the breeding of certain types of useful horses; and

WHEREAS, the good results of the work of this commission will be in proportion to the skill and expert knowledge possessed by its members; be it

Resolved, That we heartily approve the principle of the erection of a National Commission to give advice and assistance in respect to the breeding of horses; and be it further

Resolved, That we recommend that it shall be provided in the organic law erecting such a commission that the veterinary knowledge and skill of the country shall have membership representation.

VOTE OF THANKS.

WHEREAS, It was the earnest desire of the members of the State Board of Veterinary Medical Examiners, of this organization, and of the large body of professional veterinarians throughout Pennsylvania, that the work of the Board, its methods, plans, and especially the important work now in progress, should continue along the same successful lines as heretofore; and

WHEREAS, Results depend largely upon practical experience, which it requires time to gain, especially in the office of Secretary, with its immense accumulation of detail and data, beside important daily correspondence; therefore, be it

Resolved, That the Pennsylvania State Veterinary Medical Association, in session assembled, extend its approval and a vote of thanks to our respected Governor, Hon. William A. Stone, for his consideration and wisdom shown in the recent reappointment to the office of the Secretary of the State Board of Veterinary Medical Examiners its old and experienced incumbent, Dr. W. Horace Hoskins, of Philadelphia.

CLINICS AT THE MEETINGS OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION.

WHEREAS, The American Veterinary Medical Association has by its recent policy infringed upon the proper functions of State and local veterinary societies, and to a corresponding degree has neglected its own appropriate field; be it

Resolved, That we are emphatically of the opinion that the discussion of questions of purely local and narrow interest is not a proper use of the time of the American Veterinary Medical Association; and especially in view of the fact that many questions of general and broad interest have to remain undiscussed, owing to the crowded condition of the programme; be it further

Resolved, That we hereby protest against the continuance of the practice of holding surgical clinics under the auspices of and in conjunction with the meetings of the American Veterinary Medical Association. We deem such exhibitions of no educational value, but are calculated to obscure the proper function of the Association, and are injurious to the profession in the locality in which they are held.

DR. RUSH SHIPPEN HUIDEKOPER.

WHEREAS, We have lost through death our beloved friend and colleague, Dr. Rush Shippen Huidekoper, one of the greatest builders of the veterinary profession in America; be it

Resolved, That with a sense of profound loss and sorrow, and with the wish to record in permanent form our appreciation of the life and services of Dr. Huidekoper, a brief history of his career shall be prepared by the Resolution Committee and spread upon the minutes of this Association; and be it further

Resolved, That our sincere sympathy is extended to Mrs. Huidekoper in her great affliction.

MRS. D. E. SALMON.

WHEREAS, Through the death of Mrs. Salmon, Dr. D. E. Salmon has sustained the loss of a loving and helpful consort, and society has been deprived of a gentle, refining influence; be it

Resolved, That we offer to Dr. Salmon our deepest sympathy in his loss and bereavement.

DR. W. HORACE HOSKINS.

WHEREAS, Our esteemed colleague, Dr. W. Horace Hoskins, has been reappointed a member of the State Board of Veterinary Medical Examiners by the Governor; be it

Resolved, That we, the members of the Keystone Veterinary Medical Association, in regular meeting assembled, hereby express our unqualified approval of this appointment, and tender the Governor, Hon. William A. Stone, our thanks as an organization and as individuals for this well-merited recognition of Dr. Hoskins' strenuous and self-sacrificing services for the veterinary profession and for the Commonwealth as an active member of the State Veterinary Examining Board; be it further

Resolved, That this resolution be spread on the minutes of this Association and that a copy be forwarded to his Excellency, the Governor.

Done at Philadelphia, this eleventh day of February, 1902.

Attest:

WARREN L. RHOADS,
President.

E. M. RANCK,
Secretary.

WHEREAS, There has already been much valuable work done at the University of Pennsylvania and is now being done under the direction of our esteemed colleagues, Dr. Leonard Pearson and Dr. M. P. Ravenel, in the advancement of the study of tuberculosis and tuberculin; and

WHEREAS, This work has not only been most thorough, but the reports upon said work most thoroughly systematized; be it

Resolved, That we hereby encourage the continuance of this work by showing our professional appreciation at this time by a unanimous vote of commendation.

WHEREAS, The splendid work of our Pennsylvania State Live-stock Sanitary Board continues to attract attention and recognition at home and abroad; and

WHEREAS, Its generous support and approval by the people of our own State is a source of much gratification to this Association; therefore, be it

Resolved, That these most excellent results have largely followed the continuance in place and power of our colleague, Dr. Leonard Pearson; be it further

Resolved, That we most highly commend the action of our Governor in retaining our colleague in office in this Board, and our Legislature in continuing its financial support to the work of the Board, thus expressing confidence and appreciation of the successful work already accomplished.

THANKS TO THE H. K. MULFORD COMPANY.

WHEREAS, We have been instructed and entertained by a visit to the extensive and finely equipped and carefully conducted laboratories of the H. K. Mulford Company, and have dined as guests of this company; be it

Resolved, That our thanks are hereby tendered to this firm, and we assure them that the visit was very much enjoyed, and their hospitality is appreciated.

WHEREAS, The American Veterinary Medical Association at its annual convention at Atlantic City, in Septemer, 1901, placed itself on record as to the ungrateful, unprofessional, and cowardly actions of Dr. Claude D. Morris, and justly visited upon him the condign punishment of summary expulsion from its roll of membership; and

WHEREAS, This Association, in convention assembled, approves of this prompt and proper action of that Association; be it further

Resolved, That this Association, in commending this action, equally regrets and regards with great concern the attitude of the New York State Veterinary Society in continuing to condone this the most flagrant act of treachery in the history of veterinary medicine in America.

UNITY PLEDGE.

WHEREAS, The State of Pennsylvania has developed a code of veterinary laws which, in governing the practice of veterinary medicine and the control of the diseases of animals, are the best in the country, but are still imperfect, and as knowledge grows and new conditions develop will require alterations; and

WHEREAS, Such legislation as now exists was secured through the efforts of the veterinary profession of the State acting as a unit, all difficulties being settled in convention, and a united front being presented to the Legislature; and

WHEREAS, Much of the failure to secure equally good conditions in other States may be traced to dissensions in the profession itself; be it

Resolved, That we, the members of the Pennsylvania State Veterinary Medical Association, in convention assembled, realizing the advantages resulting from a policy of unity and the suicidal folly of dividing and urging conflicting measures and recommending opposing candidates, hereby pledge ourselves and our Association, that in all matters of interest to us as a profession to strive as a harmonious and united body for the purposes decided to be for the best interests of this body.

MICHIGAN STATE VETERINARY MEDICAL ASSOCIATION.

I HEREWITH transmit a short summary of the proceedings of the last meeting held by our Association, at Lansing, February 4th and 5th, 1902. The report is necessarily short; in fact, it is merely a synopsis of actual work done, without comment.

Meeting called to order February 4th, by President J. J. Joy. Forty members answered the roll-call.

President's annual address by Dr. Joy.

Committee appointed to arrange programme of entertainment for the ladies.

Minutes of previous meeting read.

Eight new members were elected.

Letters from absent members read.

W. W. Thorburn, Secretary of State Veterinary Board, was expelled.

Dr. J. Hawkins, Prof. Charles E. Marshall, of the M. A. C., and Dr. H. P. Baker, Secretary of the State Board of Health, were elected honorary members of the Association.

Resolutions of sympathy on the deaths of Mrs. Wooley and Dr. R. E. Hunt were adopted.

Delinquent members suspended for non-payment of dues.

The following officers were elected, viz.: President, H. F. Palmer, Detroit; First Vice-President, H. M. Gohn, St. Johns; Second Vice-President, J. Harrison, Maple Rapids; Third Vice-President, H. S. Smith, Albion; Secretary and Treasurer, W. A. Giffen, Detroit; Directors—Judson Black, J. W. Brodie, D. G. Sutherland, William Jopling, J. J. Walkington, and A. McKercher.

Secretary's report read.

A resolution was adopted giving the Secretary $15 in addition to his salary for the year's work.

Treasurer's report was read, showing a balance of $130.16.

Committee on Diseases reported.

State live-stock sanitary laws freely discussed.

"*Resolved*, That the Committee on Legislation be empowered to draft amendments to the State live-stock sanitary laws, and that said committee be instructed to take such action as may be deemed best to have the amendments brought before the Legislature at its next session.

Committee on Intelligence and Education reported.

The banquet was held on the evening of February 4th.

Dr. George W. Dunphy acted as toastmaster. Toasts : " Our Association, Drs. Brenton, Sutherland, Whitney, Clement, Byers, and Cummings; "Legislation," Dr. F. C. Wells; "Our New Members," Dr. H. L. Bellinger; "Our Officers," Dr. H. M. Gohn; "Our Guests," Major H. E. Johnson and Dr. Davis; "Our Bachelor Members," Drs. Smith and McKercher; "Our State Board," Dr. H. F. Palmer; "The Ladies," Drs. Giffen and Jopling.

February 5th. Dr. Brenton, assisted by Drs. Campbell, Joy, Sutherland, Black, and others, demonstrated the following surgical operations, viz., neurectomy for the cure of lameness, shaking the head involuntarily, and cribbing; tenotomy for the relief of stringhalt and bone spavin; operations for spaying in the mare and for the removal of lateral cartilages were performed.

The following papers were read and discussed, viz.: "Contagious Diseases of Live-stock in Michigan," Dr F. C. Wells; "The Work of the Michigan Agricultural College," Dr. Smith; "The Relation of the Michigan Agricultural College to Veterinary Science," Dr. G. A. Waterman; "Veterinary Protection," Dr. Charles Nyce; "Diagnostic Agents," Dr. H. F. Palmer; "The Horse's Stomach," Dr. William Jopling; "Azoturea," Dr. J. J. Walkington; "Anthrax from the Bacteriological Standpoint," Dr. C. E. Marshall.

The following resolutions were carried unanimously, viz.:

"*Resolved*, That the thanks of the Association be extended to Hon. A. T. Bliss, Governor, for the kind consideration and many courtesies he has shown us during his term of office.

"*Resolved*, That the Association's thanks be extended to Hon. J. E. Weter for the cheerful and valuable assistance he has given us in our legislative work.

"*Resolved*, That the Association put itself on record as favoring higher veterinary education in colleges and a curriculum of at least three years."

Dr. Joy installed the newly elected President, Dr. Palmer.

The President appointed the following committees: Legislation—Drs. Giffen, Wells, Dunphy, Black; Intelligence and Education—Drs. Whitney, Smith, Waldron; Diseases—Drs. Wells, Gohn, Bellinger; Clinics—Drs. Waterman, Manning, Irwin; Finance—Drs. Hamilton, Farmer, Muir.

Motion to adjourn carried.

W. A. GIFFEN,
Secretary.

MASSACHUSETTS VETERINARY ASSOCIATION.

THE eighteenth annual meeting of the Association was held at the Hotel Cecil, Wednesday evening, April 23d, at 6 o'clock. The members present were Drs. Blackwood, Beckett, Bunker, Emerson, Harrington, Howard, May, Peters, Pierce, Rogers, Winchester.

Applications for membership were received from Dr. John T. Conners, of South Boston, and Dr. George T. Quinlan, of Brookline. Under the By-laws both names were laid over until the next meeting for action.

The election of officers for the ensuing year resulted as follows: President, Dr. B. D. Pierce; First Vice-President, Dr. H. P. Rogers; Second Vice-President, Dr. George Lee; Secretary and Treasurer, Dr. Edward T. Harrington; Executive Committee—Drs. Austin Peters, Thomas Blackwood, J. R. McLaughlin, W. L. La Baw, M. Bunker.

There was a general discussion as to the advisability of changing our place of meeting as a means of increasing the attendance.

It was voted to refer to the May meeting for definite action the following motion:

"*Resolved*, That the contract for the ensuing year with the Boston Medical Library be not renewed, and a contract be entered into with the Boston Veterinary Hospital to the same end if satisfactory arrangements can be made."

The resignation of Dr. Etienne, of St. Hyacinthe, P. Q., was read and accepted, and it was voted that the Secretary send him a letter of regret.

After the business meeting the members sat down to the banquet and passed a very enjoyable evening.

After the banquet the following toasts were proposed by the toastmaster, Dr. L. H. Howard: "Our Association," responded to by Dr. D. B. Pierce; "One of Our Oldest Members Honored by the National Association," Dr. J. F. Winchester; "Harvard Veterinary School," Dr. E. C. Beckett; "The American Veterinary College," Dr. M. Bunker; "The Commonwealth of Massachusetts," Dr. Austin Peters; "McGill University," Dr. T. Blackwood; "Our Out-of-town Members," Dr. D. Emerson; "The Bureau of Animal Industry and Sanitary Police," Dr. H. P. Rogers;

"Our Secretary," Dr. E. T. Harrington; "The Profession Across the Water," Dr. H. S. Lewis; "The Ladies," Dr. A. W. May.

The meeting then adjourned.

EDWARD T. HARRINGTON, V.S.,
Secretary.

NEW JERSEY BOARD OF VETERINARY MEDICAL EXAMINERS.

THE New Jersey Board of Veterinary Medical Examiners met at the State House on Monday, May 5th, and before noon of that day the oath of office was administered by Assistant Secretary of State J. B. R. Smith. Governor Murphy's selection to comprise this board consists of these names: Dr. William Herbert Lowe, Paterson; Dr. J. E. Smith, Jersey City; Dr. Whitfield Gray, Newton; Dr. T. Earle Budd, Orange, and Dr. T. B. Rogers, Woodbury. Immediately after the oath was taken an organization was completed and the following officers elected: President, Dr. William Herbert Lowe; Secretary, Dr. Whitfield Gray, Newton; Treasurer, Dr. T. E. Smith.

A committee was named consisting of the President, Secretary, and Dr. Thomas B. Rogers to arrange the details of the approaching examination.

It was decided to hold the first examination at the State House, Trenton, on June 24, 1902, and intending applicants can secure the desired information and application blanks from the Secretary.

Immediately after the organization and the necessary business completed the meeting adjourned as a mark of respect to the father of the "McKee act," Senator Wood McKee, of Paterson, whose father's death occurred the day previous.

It is perhaps needless to add that this was an eventful day to the veterinary profession of the State, because it really marks the beginning of a new and important period in its history, and places the members of the profession on a plane with other branches of medicine. A careful perusal of the McKee act, which is responsible for the existence of this commission, will show that hereafter in New Jersey intending practitioners must be properly educated and in other ways fitly qualified.

A united feeling exists among the profession in the State, and this harmonious condition, together with the recent legislative recognition, is due largely to the untiring efforts of the President, Dr. William Herbert Lowe.

WHITFIELD GRAY,
Secretary.

NOTES.

PHYSICKING IN MILK FEVER CASES.—In almost every form of treatment for milk fever the prescriptions include a cathartic of some kind. In some, the physic is given the first consideration, but opinions vary as to the strength and number of doses it is advisable to give. For the past decade it has been generally accepted that the bowels of the patient must be kept active during the whole period of confinement for calving, and it would be appalling if the mountain of epsom salts giving dairy cows in that time could be displayed in one heap.

An opposite view of the case is credited to Mr. Obadiah Brown, in a bulletin lately issued by the Rhode Island State Board of Agriculture. His method of treating milk fever omits the purging process, and he is quoted as saying, "I have never known a cow treated with physic to recover from milk fever; with my treatment I have never lost a cow."

This will be rather surprising to many who have been reading about the value of physic at calving time. It may be interesting to know what Mr. Brown does instead, although his may be a familiar method. He says:

"My experience has been confined to my herd and to some of my neighbors' cows. My treatment is with laudanum and spirits of sweet nitre. When the cow is first taken I give an ounce of laudanum and nitre in a pint of blood-warm water sweetened with molasses.

"Shake up together in a quart bottle, hold up the cow's head, slip the neck of the bottle in the side of her mouth, between the grinders and the front teeth and let the liquid run down her throat. If this does not relieve her she will bloat slightly and appear uneasy. In three or four hours give one half ounce more of laudanum and nitre; repeat this dose as often as she becomes uneasy, or in three or four hours. If this does not relieve the cow, increase the quantity until the medicine masters the disease.

"One of my cows had milk fever three years in succession. The ordinary dose did not relieve her. I gave two ounces of laudanum and two of nitre at one dose. It had the desired effect, and relieved her so that in a few hours she was on her feet eating hay."—*Jersey Bulletin.*

Veterinary Surgeon Desmond, of Adelaide, South Australia, reports a case of trichinosis in man. A cancerous-like growth of the neck on a patient proved on careful microscopical examination to be filled with numerous specimens of the trichina spiralis. In an article published in the Adelaide *Advertiser*, Dr. Desmond reviews the literature and the method of its development, etc.

Twenty years' practice with high class stock is the way a Long Island veterinarian announces himself to the public.

PERSONALS.

Dr. James W. Sallade, of Schuylkill Haven, Pa., who has lately been appointed Steward of Schuylkill County, met with a painful accident in April from a kicking, vicious mare fracturing a limb and bruising him so badly as to confine him to his bed for several weeks.

Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, was the guest of the Philadelphia Pathological Society on Thursday evening, April 25, 1902.

Dr. W. L. Rhoads, of Lansdowne, Pa., is known among his friends as a fighter. He has just fought a horse case to a successful issue.

Dr. N. A. Christianson, formerly of Magnolia, Minn., has removed to Luverne, in the same State.

Dr. R. G. Rice, of Towanda, Pa., is secretary of the town Board of Health.

Dr. I. K. Atherton, of the Bureau of Animal Industry, has been transferred from Marshalltown, Iowa, to Chicago, Ill.

Drs. Marshall, of Philadelphia, Pa., William H. Ridge, of Trevose, Pa., and Charles F. Oat, of West Chester, Pa., officiated as veterinarians at the Philadelphia Open-air Horseshow in May.

Dr. G. E. Fetter, of Hopewell, N. J., was a visitor to the JOURNAL office in the latter part of April.

Dr. D. B. Fitzpatrick has returned to Philadelphia and re-entered upon veterinary practice in the western part of the city.

Dr. J. C. Burneson, veterinarian of the Ohio Agricultural Station, has resigned to again enter upon civil practice.

State Veterinarian Pearson, of Pennsylvania, was a visitor to Baltimore, Md., in April.

Dr. A. P. Ruhl, of Fairmount, West Virginia, is Professor of Veterinary Science in the West Virginia University at Morgantown.

Dr. H. J. Weicksel, of Shamokin, Pa., is the owner of the famous trotting horse "Paxinos," with a mark of 2.14¾.

Drs. Roe and Stone, graduates of the Chicago Veterinary College, located at Milwaukee, Wis., conduct a special kennel department in connection with their South Side Hospital.

Dr. M. W. Drake, of Philadelphia, Pa., is a member of the "Gentlemen's Driving Club" of the "Quaker City."

Dr. Richard P. Lyman, of Hartford, Conn., will, on and after May 1st, be associated with the practice of Messrs. Lyman and Osgood, at 50 Village Street, Boston, Mass.

Dr. W. H. Yingst, of Harrisburg, Pa., made two trips to South Africa for the English Government. On one voyage the loss of animals only reached four and the other reached six—a very small percentage, indeed.

Dr. Levi Johnson, of Portland, Ore., designates his hospital under the name of the "Oregon Veterinary Hospital."

Dr. William P. Fink, of Atlantic City, N. J., conducts a large farm close to this great seaside resort in connection with his city practice.

Dr. E. L. Cornman, of York, Pa., was recently called to defend an operation of docking, which was dismissed by the alderman on the evidence of its being a necessary operation.

Dr. W. P. Hanifan, of New York City, is very deeply interested in the success of the Metropolitan Truckmen's Association.

Dr. George B. Gilmore, of Pittsburg, Pa., has added a boarding stable in connection with his practice.

Dr. William A. Gross, of Brooklyn, N. Y., is also the proprietor of the Ross Street Hay Market in connection with his practice.

Dr. B. F. Bachman, of Pittsburg, Pa., has become joint owner of the Schenley Riding Academy.

Dr. H. D. Gill, of New York City's Driving Club, takes an active part in the welfare of the club, and fills well a place on several important committees.

Dr. E. G. Gilbert, of Pottstown, Pa., is the owner of a fast roadster which is high classed in her breeding.

Dr. G. A. Johnson, of Sioux City, Iowa, is the veterinary editor of the *Farm, Stock and Fireside Journal.*

Dr. John G. Miller, of Reading, Pa., is conducting a veterinary hospital in connection with his practice. Lameness and gaiting of horses are especially attractive features of veterinary science to Dr. Miller.

Dr. Charles L. Colton, of Englewood, N. J., graduate of the Veterinary Department of the University of Pennsylvania, has succeeded to the practice of Dr. R. P. Lyman, of Hartford, Conn.

Dr. M. D. Harper, of Breningsville, Pa., graduate of the New York College of Veterinary Surgeons, was a visitor to the JOURNAL office in May.

Dr. A. W. Gorham, formerly located at Port Chester, N. Y., is now at Westwood, Mass.

Dr. V. B. Weaver, of Bangor, Pa., was a visitor to the JOURNAL office in May.

Dr. James T. Glennon fills the rôle of veterinarian to the fire department of Newark, N. J.

Dr. H. B. McClellan, of Bryn Mawr, Pa., who for several years devoted his time to human medicine in one of the Western States, has returned to his home and re-entered upon the practice of veterinary medicine.

Dr. A. M. Humphrey, of Darien Centre, N. Y., has not been able to practice for two years, owing to illness, but continues to take a lively interest in veterinary matters, and is a constant reader of the JOURNAL.

Dr. G. E. Nesom, of Clemson College, S. C., will favor the JOURNAL with a report of experiences in the exhibiting of Northern cattle at the Charleston Exposition.

Dr. T. Earle Budd, of Orange, N. J., will officiate as veterinarian to the Atlantic City Horseshow, July 15th to 19th.

VETERINARY REGISTER.

[See Editorial, Journal of Comparative Medicine and Veterinary Archives, July, 1901, page 438.]

[In the following list the names and data printed without comment are those furnished to us by postal card with the signature of the individual.

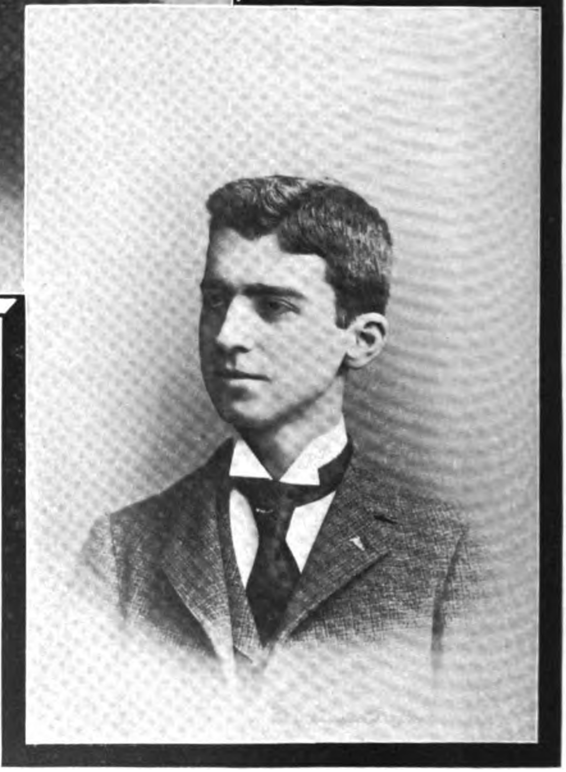
Those with an asterisk [*] are those to whom we have sent, by United States mail, an envelope with prepaid postage and a request for return if not delivered in ten days; as the envelopes have not been returned, we presume that the letter has been delivered, that the individual in question exists, but that he has neglected to return the enclosed postal card with the information requested.—Ed. Journal.]

PENNSYLVANIA.

(Continued from page 336.)

Wight, W. E.	813-15 Forbes av	Pittsburg	Ontario Vet., 1883 McKillip Vet., 1899	Allegheny, 1899
Wilcox, Parris	......	Covington	*	......
Wilkinson, J. W.	......	Meadville	*	......
Will, Daniel S	......	Bainbridge	*	......
Willard, Samuel B.	......	Yardley	V. D. U. Pa., 1889	Bucks, 1889
Williams, Charles	1321 Thompson	Philadelphia	V. D. U. Pa., 1887	Philadelphia
Williams, Edward	......	Hanover Twp.	*	......
Willtraut, F. A.	S. Wash'ton st Care Nagle's Livery Stable	Wilkesbarre	*	......
Wilson, D. C.	......	Cassville	*	......
Wilson, Samuel	......	Somerfield	*	......
Wilson, Walter H.	......	Hatboro	N. Y. C. V. S., 1892	Montgomery, 1893
Wilson, Wm. M.	Jefferson st	Hartstown	Ontario Vet., 1898	Crawford, 1899
Winters, E. A.	......	Shrewsbury Twp.	*	......
Wisdom, R.	1438 S. Broad st	Philadelphia	*	......
Wise, J. H.	......	Rife	*	......
Witmer, H. W.	S. Railroad st	Shippensb'g	Ontario Vet., 1895	Cumberland, 1897
Witmer, John M.	......	Quarryville	*	......
Wolf, John	......	Bethel	*	......
Wolfinger, W. W.	......	Ottsville	*	......
Work, Alex. S.	......	Marion Centre	*	......
Wright, Francis H.	......	Coatesville	*	......
Wright, Harry A.	601 Ligonier st	Latrobe	*	......
Wright, W. L.	......	Jennerstown	*	......
Wright, W. S.	22 N. Diamond	Allegheny	*	......
Yeager, Conrad	......	St. Bonifacius	*	......
Yeagle, Jos. S.	......	Warrensville	*	......
Yeakle, Emanuel	......	Sylvan	*	......
Yetter, Ed. G.	......	Toughkenamon	*	......
Yingst, Henry	......	Bellgrove	*	......
Yingst, Walter H.	2d & Walnut	Harrisburg	N. Y. C. V. S , 1896	Dauphin
Yocum, John F.	......	Alexandria	*	......
Yoder, Edwin C.	......	Athol	*	......
Yoder, Henry S.	......	Manatawny	*	......
Yohn, Thos. M.	......	Spruce Hill	*	......
Yost, Augustine, Sr.	......	Carrolltown	*	......
Yost, Jacob R.	......	Manchester	*	......
Young, Wm., Jr.	......	Nanticoke	*	......
Young, E.	236 E. 4th st	Chester	*	......
Young, Geo. J.	Chestnut st	Coatesville	Ontario Vet., 1893	Chester, 1893
Young, Thos. D.	......	Media	*	......
Young, T. D. & Bro.	236 E. 4th st	Chester	*	......
Young, W. W.	......	Philadelphia	*	......
Young, Wm., Sr.	......	Nanticoke	*	......
Zell, Daniel	......	Churchtown	*	......
Zellers, I. W.	404½ Broad st	Harrisburg	Dauphin, 1889	......

Dr. Thos. B. Rayner,
Donor of the Memorial
Library to the
Veterinary Department
of the University of
Pennsylvania.



Moncure Robinson Rayner,
Deceased Son, in whose name the
Library has been established;
Late Student of the Veterinary
Department.

[illegible]

THE JOURNAL

OF

COMPARATIVE MEDICINE AND VETERINARY ARCHIVES.

VOL. XXIII. *JULY, 1902.* No. 7.

A DEVIATION FROM THE ORTHODOX METHOD OF TREATING PARTURIENT PARESIS AND ITS ETIOLOGY.

BY W. E. A. WYMAN, V.S.,
PORTLAND, MICH.

SCHMIDT-COLDING, as any reading veterinarian knows, suggested the iodide of potassium water udder infusion in the treatment of parturient paresis. This treatment when properly executed is certainly reliable and reduces the rate of mortality to an astonishing degree. The writer, after an extensive experience with udder infusion, firmly believes that udder infusions are a condition *sine qua non* in the treatment of this disease. Schmidt-Colding claims that the iodide of potassium conquers the toxin supposed by him to be formed in the udder, laying the foundation of an auto-intoxication which he claims this disease represents. With all due respect to Dr. Schmidt-Colding, the writer does not at all agree with his propositions. Since eighteen months the writer has used no iodide of potassium at all, but either simply boiled water or boiled water and sodium chloride—that is, a normal saline solution. Either one of these is just as prompt in its action as the iodide of potassium water solution; the amount the writer uses is governed entirely by the size of the udder, it being his intention to distend the udder for reasons subsequently given. This point alone settles the necessity of employing iodide of potassium, and explodes Dr. Schmidt's theory that the iodine set free from the iodide of potassium should be the curative agent. The writer does not believe in an auto-intoxication due to products of decomposition arising in the udder to be the cause of parturient paresis, but believes that the cause of the disease is to be found in a sudden undue accumulation of nutritive elements in the maternal body as soon as the umbilical cord tears. As long as the fœtus is supported by the mother the distribution of nutritive elements is balanced or reasonably balanced, which is done away with as soon as the calf is born. If at this moment the udder secretes fully, this excess of nutritive elements is excreted via the udder and the animal remains well, but should the udder do its duty but partially this excess of nutritive elements is retained in the body, and an auto-intoxication can take place. The udder infusion most likely either takes up the poison, or by its presence excites the parenchyma of the gland into renewed activity, thus draining the excess of nutritive elements stored up in the body and doing away with the foundation of an auto-intoxication. On the other hand, instead of exciting the udder into activity, the infusion may set the gland at rest by the pressure which it exerts upon the parenchyma. Should this be correct, what explanation can be offered as regards the curative action of the saline infusion? It is probably not to be denied that at this time an excess of blood invades the udder, as a result of which anæmia of the brain and a comatose, or at least depressed, state of the senses follow. This should explain both ante- and post-partum cases.

By distending the udder with the saline infusion its activity is possibly arrested, and thus a chance given for the equalization of the disturbed circulation, thus a removal of the anæmic state of the brain and a return to health. The first theory advanced by the writer appears the stronger one, while the latter one undoubtedly has points which recommend themselves. Will our reading veterinarians ventilate their views and help us fix our creed in the etiology of this interesting disease? The longer the writer treats parturient paresis the more does he become convinced that we occasionally imagine we have a case of parturient paresis, but in reality are dealing with a disease simulating parturient paresis closely; we are dealing with a parturient paresis-like disease; in other words, have before us a case of acute puerperal septicæmia. Does not the fact that these intramammary infusions sometimes utterly fail in recent cases without marked organic complications on post-mortem hint at that?

PRESIDENT'S ADDRESS.[1]

By P. O. Koto, M.D.C.,
FOREST CITY, IOWA.

Fellow Members of the Iowa State Veterinary Medical Association:

It is with a feeling of mingled pleasure and regret that I meet with you on this occasion in the capacity of your president. A pleasure, because I have the privilege of associating with you in a great and good work; regret, because of my inability to render you the service you deserve.

I need not dwell upon the significance and importance attached to the annual meeting of this association. I trust that your deliberations and labors will be in the interest of the profession and for its betterment. We come from all parts of this noble and beautiful State, not noted for its snow-clad mountain peaks, nor is its horizon bounded by visions of desert plain or dreary waste; but the sun lifts its first beams over fields of tasselling corn, crimson clover, and velvety blue grass, at its meridian sheds a tropical warmth over a modern Eden, and sinks in splendor over the happy homes and fertile fields of the best agricultural State in the Union. Iowa can boast with pride that she is the garden spot of the universe. Her people are the most intelligent, prosperous, contented and happy. She ranks first among the States in the number of schools, teachers and pupils—in proportion to population. In material resources and all branches of advancement and progress, Iowa is in the fore rank. In stock raising and breeding she can show the best specimens. At the exhibit or on the turf usually from Iowa come the prize winners. This fact greatly emphasizes the importance of the profession of veterinary medicine in Iowa.

That this is an age of progress is self-evident. Especially is this an age of progress in veterinary medicine. Never was the attention of the scientist so turned to investigation of problems directly in the line of advancement of knowledge of veterinary science. The brightest minds of this and foreign countries find congenial occupation in this line of work, although oftentimes of conflicting opinions. Especially is this true of tuberculosis, the bone of contention, problems in connection with which, through researches and experiments, will no doubt be satisfactorily solved. Both branches of medical science are to-day fairly launched upon the sea of investigation, striving to unravel the obscure and oftentimes mysterious causation of disease. In the earlier days the members of the veterinary profession were almost entirely those having little or no education. All these things have changed during the last few years. The illiteracy and ignorance once enveloping veterinary science have given way to a most advanced and perfected knowledge, and we are to-day a body of professional scientists ready and capable to assume the responsibilities belonging to this noble calling. Our eligibility to mingle in society on terms of equality with other reputable professions is no longer questioned. The value of the veterinarian not only for the prevention and spread of contagious diseases among domestic animals, but for the valuable assistance rendered toward the preservation of human health, is now undisputed.

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[1] Presented at the Fourteenth Annual Meeting of the Iowa State Veterinary Medical Association, Des Moines, Ia., February 11-12, 1902.

We are not unmindful of the fact that much good has been accomplished through the hearty co-operation of the medical profession, and it is a well-recognized fact that the two professions go hand-in-hand, carrying on a combined work for the complete and accurate understanding of those diseases communicable from animal to man. It is said man is the highest of earthly beings; next in physical organization come the domestic animals, such as the horse, the dog, the cow, the hog and the sheep. The men who devote their lives to the care of the health of these animals deserve the same gratitude extended to the sister profession. The successful veterinarian of to-day must be a man of sympathy and kindness, a keen observer of the laws of nature and capable of studying the instincts of the animal. In the practice of veterinary medicine dependence on rules laid down in text-books is not sufficient. I will venture to say that nine out of every ten graduates must earn their living as general veterinary practitioners; they must keep abreast of the theories and discoveries of the passing day. Many graduates of the leading colleges, with no practical training and lack of natural ability, when placed in everyday practice make a complete failure, being utterly incapable of applying their theory to practical purposes.

With the rapid increase in value of horses and other live stock, and the steady increase in value of all farm products, the solid financial condition of the country, and the steady advance in price of real estate, the veterinarian comes in for his share of the prosperity which our country has been blessed with during the last year or more. From what information I can obtain, the services of the veterinarian have been more eagerly sought for by the farmers and stockmen during the last two years than at any other time since the depreciation in live stock which occurred about 1893 and 1894.

The value of a veterinarian as a sanitarian is now better understood. The future of our profession in relation to meat- and milk-inspection is as plain as it is inevitable; our sanitary laws and regulations will be increased and strengthened in harmony with the needs of civilized people.

Regarding the tuberculosis sensation, there are very conflicting opinions among eminent men in favor of and against Professor's Koch's recent theories. The distinguished professor has made the startling announcement that there is nothing in common between human and bovine tuberculosis, while other eminent scientists stoutly deny this. The results of these investigations will be watched with interest by all interested in this great problem.

Allow me to touch briefly on the question of legislation. During our meeting of 1900 it became evident in the minds of the members of our association that an effort should be made to secure legislation. Fortunately, or unfortunately, your humble servant, being a member of the Twenty-eighth General Assembly, was made to feel it his duty, on account of the urgent appeals of the members of the association, to introduce a bill governing veterinary practice in Iowa. With the advice and co-operation of the other members of the committee on legislation a bill was prepared that was satisfactory to that committee and nearly all members of the profession. I will not burden you with the details, but suffice it to say that the bill passed the House without much opposition and passed the Senate after some amendment. Like every great movement, there has to be some individual sacrifice made, but the sacrifices made for the common good of the profession have strengthened the ties of friendship and mutual respect such as nothing else could do.

The many knotty problems predicted have presented themselves, and I want to congratulate the members of the profession for the very able manner and good judgment the Veterinary Board has shown in dealing with the duties pertaining to the new law. Some individuals have been rejected from lack of proper qualifications, and no doubt some who were ineligible have, through misrepresentation, been admitted. I am sorry to be obliged to mention that some members of the profession are inclined to hold the board or the author of the bill responsible for these unavoidable conditions. The profession should rise above criticism when members discharge their duty in aiding the profession. One's duty lies not in tearing down what has already been achieved, but rather in making it stronger. Look at the great industries of the land. What is it that gives them their great power and influence? First and last, it is organization, bound together in mutual interest, without which it would be like a barrel without hoops. In conclusion permit me to say that we should strive to correct what we believe to be wrong. Be honest with yourself and your fellow practitioners, and your profession will go on in the grand triumphal march of prosperity.

Now, gentlemen, this is your meeting. Trusting that you will throw dull care to the dogs and get all the good you can and all the enjoyment possible, I thank you most sincerely for the honor conferred upon me and for the courtesy shown me during my term as president of your association.

TUBERCULIN.[1]

By H. F. Palmer, D.V.S.,
DETROIT, MICH.

One of the most important diagnostic agents used in the veterinary profession is tuberculin. That quiet and insidious disease, tuberculosis, which at one time was allowed to get such a hold of our bovine species, can now be recognized in its first stages, and means be taken for its eradication.

In 1882 Professor Koch announced to the scientific world that tuberculosis of whatever form was due to a specific germ, the tubercle bacillus. After eight years more of experimental work with the germ and its products, tuberculin was given to the medical profession as a remedy to be used in the treatment of tuberculosis. However, time soon showed the useless action of this same tuberculin as a therapeutic agent and classed it as one of our diagnostic agents.

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[1] Abstracts of an address made at the Annual Meeting of the Michigan State Veterinary Medical Association.

To-day tuberculin stands at the head of the list of diagnostic agents used in the veterinary profession, especially in bovine work.

Tuberculin is not an infallible guide, but from the records of those who have been the largest users of it comes the highest praise. No single agent, diagnostic or remedial, can be so implicitly relied upon as tuberculin. Dr. E. A. A. Grange, who for many years was Michigan's State Veterinarian, says of it: "I have used tuberculin in upward of one thousand instances in this State, and have not discovered a case in all these which would impeach the test." The Alabama Experiment Station says: "Out of 4068 animals in various parts of the United States, tested by various persons and with various forms of tuberculin, 1137 animals reacted and 1118 exhibited undoubted tuberculous lesions upon the post-mortem examination. In nineteen cases of those that reacted the investigator failed to find any visible tuberculous lesions. The microscope was not used, and possibly the post-mortem examinations were nôt as thorough and complete as they might have been." In Massachusetts the Cattle Commission have tested over 25,000 cattle, and they have found the tuberculin at fault in only one out of every 400 tested.

At an International Veterinary Congress held at Berne there was a very interesting discussion as to the use of tuberculin to diagnose the presence of tuberculosis. The weight of evidence was so much in favor of tuberculin that the vote of the congress was almost unanimous, there being but two dissidents. The French scientist, Professor Nocard, has injected tuberculin under the skin of 3000 cows, and on only two occasions did it fail, but these were in cows with the disease far advanced. M. Bang, of Denmark, produced the certificate of 45,000 cases of successful injections, with but a few failures, due to the chronic stage of tuberculosis.

The method now in vogue for manufacturing tuberculin does not essentially differ from that originally used by Koch.

Beef bouillon, to which has been added 1 to 2 per cent. of peptone, 4 to 5 per cent. of glycerin, and ½ per cent. of salt, is made slightly alkaline with sodium hydrate, and poured into sterile flasks to form a thin layer on the bottom. These flasks are then inoculated with small portions of the scale-like growth of the germ as it appears on the surface of the culture media. They are then plugged with sterilized cotton and placed in an incubator, which is kept at 37° to 38° C. In two or three weeks a slight scum appears on the culture fluid; this gradually thickens until at the end of six weeks there is quite a thick grayish-white wrinkled layer. Shortly this mass of germs breaks up into irregular pieces and falls to the bottom of the flask. These matured cultures are examined microscopically. If found pure they are poured in a shallow evaporating dish, and concentrated to one-tenth of the original volume, the result being a thick, brownish, turbid, syrupy fluid. This fluid is then filtered through unglazed porcelain, *which removes all the germs*, and we have crude tuberculin as the result. Upon adding 60 per cent. of alcohol to this crude tuberculin a precipitate is thrown down, which, after being washed several times with dilute alcohol and dried in vacuo, constitutes the purified tuberculin of Koch.

Tuberculin is placed on the market as a syrupy liquid in concentrated form, to be used with some diluent, as ½ per cent. carbolic acid, distilled water, or normal salt solution.

Dose: 0.4 of a cubic centimetre (6 drops) with an indefinite quantity of the diluent.

Injection: Tuberculin should be given as a regular hypodermic injection. The usual precaution of sterilizing the site of injection and using the sterile syringe and needle should not be neglected. Dilute the tuberculin and inject just beneath the skin at some convenient point along neck or fore-shoulder region.

Reaction: The temperature of the animal should be observed several hours before injection in order to ascertain the normal temperature of each individual. Do not inject an animal with an irregular temperature or one that has an abnormal temperature, either high or low, for in such cases it cannot be ascertained whether it is the action of the tuberculin or a previous disordered condition (not tubercular) that causes rise of temperature. Ten hours after injection the temperature of the animal should be taken every two hours. Some rely on the temperatures taken at the twelfth, fifteenth and eighteenth hours after injection for a reaction, but it is the best noted by taking six or seven temperatures some two hours apart. A rise of two degrees or over from the normal temperature previous to injection constitutes a reaction.

Just why we get a rise of temperature after the injection of tuberculin in tuberculous animals is a question of much controversy. Some explain it by saying that the slightly diseased system contains a certain amount of the chemical poison analogous to the toxin which we inject. To this small amount of toxin the system is accustomed, and the reaction it causes is not perceptible. But when in addition to this we introduce into the system a small quantity of the poisonous product of the bacilli used for the test, the increased quantity acts on the diseased tissues and nerve centres alike, and so fever and other constitutional symptoms result.

Frequently the use of other toxins in immunizing animals for the production of serums has given us similar results. A supposedly healthy horse may respond to the injection of even one drop of toxin by producing a rise of 4° in temperature, and remaining at this point for three days. Can we not from this infer that an animal even slightly diseased will the more readily react to this small dose of toxin?

During the testing period the animal should be kept under as uniform conditions as possible, as a change in conditions will often cause a change of a degree in the temperature. It is advisable to keep the animal closely housed in order that the above conditions can be met.

To a healthy animal there is no reaction, neither fever nor constitutional. The milk of a milch cow is unaffected, and can be used as food the same as though not injected. Besides the rise of temperature in a reacting animal there will often be noticed a large swelling at point of injection, malaise, anorexia, which usually passes off at the end of twenty-four hours.

Below we give the record of two animals under test, each of which was injected at 9 P.M. No. 1, showing no reaction, was pronounced healthy. No. 2 gave a rise of 3$\frac{2}{5}$°, which is a distinct reaction, and the animal was pronounced tuberculous.

Before Injection.

	9	2	3	6	9
No. 1.	101	101	101	101	102
" 2.	102	102	102	102	102

After Injection.

	6	8	10	12	2	4	6
No. 1.	102	101	102	101	101	101	101
" 2.	105	106	105	103	103	103	103

Criticisms have arisen regarding the use of tuberculin, but the following facts will prove these objections unfounded:

1. Healthy animals may be made tuberculous by injections of tuberculin. This is impossible, as the germs are not present in tuberculin. The toxic product (tuberculin) is rendered sterile by high temperature or by passing through a porcelain filter.

2. Animals in an advanced stage of tuberculosis do not react. This is often the case, but tuberculosis can usually be detected in such animals by a physical examination.

3. After one reaction from the use of tuberculin the animal's ability to react is lost. In a measure this is true, and we would advise not to inject unless at least one month has elapsed since the last injection. Some unscrupulous dealers who desire to barter a tuberculous animal will try to disguise a tuberculous reaction by giving the animal a dose of tuberculin a few days previous to time of regular test.

4. Some think that tuberculin has the power of arousing latent tuberculous foci, and producing a much wider spread of the disease. To this objection we would refer to the experience of Nocard, who from more than three thousand tuberculin injections has only in three cases, and those far advanced in the disease, observed aggravation of tuberculosis by tuberculin injections.

MALLEIN.

Another important diagnostic agent used in the veterinary profession is mallein. Although not as infallible as tuberculin, still time and experience give it a very important place. This agent is used to detect glanders in all equines.

Beef bouillon is prepared in the usual manner and put into sterile flasks which are planted with a pure culture of bacillus mallei. These flasks are put in an incubator and kept at a temperature of 37° to 38° C. In a short time a growth is noticed, and at the end of four to six weeks a thick scum has formed. The germs in growing elaborate a chemical poison-toxin, which is the crude mallein. The flask is now taken from the incubator, heated at 212° for one hour, which kills all the germs. The preparation is then filtered, first through paper, and finally through a Berkfeldt filter, which removes all germs. This filtrate is again heated and concentrated to one-tenth of its original volume.

Dose: 1 c.c. of the concentrated filtrate with an indefinite quantity of any diluent, as ½ per cent. carbolic acid, distilled water, or normal salt solution.

Injection: Dilute the mallein and inject just beneath the skin of the neck or fore-shoulder region. The site of injection should be sterilized, and only a sterile needle and syringe employed.

Reaction: Like tuberculin, the reaction is best noted if several temperatures are taken at intervals previous to injection, to ascertain the normal temperature of each animal. If the bacillus of glanders is present in the system, some ten hours after injection the temperature will begin to rise, and keep on the ascending scale for six or eight hours, then gradually descending to normal. A rise of two degrees or over from normal constitutes a reaction. Besides the temperature reaction there will usually be local manifestations. A large, painful swelling will appear at point of injection. The animal will appear weak, trembling and dejected-looking. These abnormal symptoms all subside in a few days.

The reason why we get a reaction from a horse with glanders and no reaction from any other disease is probably analogous to the tuberculous reaction following the injection of tuberculin. Dr. J. M. Wright, Assistant State Veterinarian, of Illinois, injected mallein into horses known to be affected with other diseases than glanders, and not in a single instance was there a reaction simulating the mallein reaction. He used six horses with well-marked generalized melanosis, thirteen cases of pleurisy, sixteen cases of pneumonia, three cases of pleuropneumonia, twenty-four cases of influenza, three cases of purpura hemorrhagica, fourteen cases of lymphangitis, two of which were in a state of suppuration. He says of them: "None of these animals showed the slightest degree of reaction, either by causing an attenuation of temperature or systemic disturbance." Mallein is a guide to detect bacillus mallei, and that alone.

Below we give the temperature reaction in two cases. Each animal was injected at 9 P.M. No. 1 had no appreciable rise of temperature, consequently was pronounced healthy, while No. 2 had a rise of 3⅗° in temperature, and so was pronounced glanderous.

Before Injection.

	9	12	3	6	9
No. 1.	100	100	100.2	100.1	100.2
" 2.	100.2	100	100.1	100	100

After Injection.

	6	8	10	12	2	4	6
No. 1.	100	100	100.3	100.1	100.2	100.3	100.2
" 2.	100.2	101.2	101.3	104	100.3	102.1	101.3

The same criticisms are urged against the use of mallein as against tuberculin, saying it is not infallible, that it will produce the disease, and cause a chronic case of glanders to become acute. To these criticisms we would say that mallein when properly prepared will no more induce the disease glanders than as though so much distilled water had been injected. The mallein is free from germs, having been rendered sterile either by heat or by filtration through unglazed porcelain. Even though a mallein injection does render a chronic case of glanders acute, is it not better to hasten the termination of this fatal disease than to keep an animal that is continually giving off the deadly germs?

OBSTETRICS.[1]

By James M. Reed, V.S.,
MATTOON, ILL.

Obstetrics is that branch of veterinary medicine and surgery which treats of female ailments, delivering of the young, and treating diseases of the genital organs. Until we become familiar with and better understand the practical parts, conservativeness will prevent us from accepting as gospel truth many of the fine-spun, hair-splitting theories now advanced. But give us time to properly digest them, and we will move on with the advance guard of progress in this direction. We are not displaying ignorance when we acknowledge that in many instances it is a very difficult matter in treating cases of abortion to distinguish between it and some other form of pain which pertains to some other disease. In some cases great responsibility rests upon our diagnosis of the case. We know that grave mistakes have sometimes been made by which the school of practice has been closed. And we also know that where these mistakes have occurred people have lost confidence in the judgment and ability of the practitioner, and often dislike to pay the fees for his services. We cannot afford to be too decided in this matter. There are exceptions to all rules, and a mode of treatment cannot be determined upon until the case is diagnosed. Communities are observant, and charge us with such shortcomings. Besides, they do not care whether we arrive at our conclusions through the medium of a culture test taken from the patient present, or through symptoms familiar to us by close attention to our profession in a long line of practical experience. Breeders of the domestic animals object to being deceived by the want of skilful or competent services. When placing their stock at our mercy we might be asked how we are to avoid making such mistakes when at times it is so difficult to discern a case of abortion from other pain-producing diseases. To which our only answer can be that "Experience and intimate knowledge of the actual thing itself can be our only guide." To the general practitioner that does not signify very much, for he knows that very few who may chance to witness such cases are ignorant of the real trouble. I sometimes think that all a veterinary surgeon requires to be able to remove the dead and completely rotted fœtus from the womb of an old cow which has been fed on young green clover, and to retain his shoe heels, is to have the digestive organs of an old turkey buzzard.

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[1] Read before the Eleventh Annual Meeting of the Illinois Veterinary Medical and Surgical Association.

While, to be a successful practitioner, one must have some knowledge of obstetrics as laid down in our text-books, he must also have some practical knowledge as taught in every-day experience. I well remember how attentively I pondered over my text-books of the leading writers on veterinary medicine, the descriptions to the student therein given, and how we should go at the many presentations of the unborn. While I faithfully follow the principles of obstetrics as taught in our leading text-books, I find nothing therein telling me how to handle the female when she places herself in some of the many difficult positions for operation. Even while following the results of observations and conclusions of my theoretical knowledge and practical experiences and having exhausted all my resources, I have still made some wonderfully successful failures. It is true that in many instances I have had no trouble whatever. We know that many of our patients have unpleasant quarters, which aggravates the case and adds to our difficulties in treating it. Now, it is reasonable to suppose that others have had the same thing to contend with, and have had the same lack of success, for it is improbable that all of my cases were the only exceptions. One professional gentleman stated to me that his history of experience in abortions and delivering of the young was always a success to the mother, and, in a great many cases, the young were also saved, and that he had a certain line of treatment to which he always adhered. This may be true, but, in my opinion, his cases in obstetrics are few and far between. Such positive statements of absolute success in all cases always struck me as being very "fishy."

Propound a few of the leading questions to such a veterinarian, and you will soon lose his company; you will see that this kind of pressure puts him to flight, and, to hold on to him, you will have to be heavier than I am, or you will be dangling in the air like the tail end of a kite before a stiff breeze. In the practice of veterinary medicine I have met with many peculiar presentations. Now, suppose you have a case of muzzle presentation. After preparing yourself in the proper paraphernalia, and applying antiseptic precautions, you would introduce your hand and raise the nose. After which nature would, in all probability, do the rest, or possibly a little of your assistance might be required. Suppose you had a lumbosacral presentation: you would simply take it by the heels and politely pull the young fellow into the world. Should you have a case of posterior limbs and anterior presentation: I would, in my treatment of this case, reduce it to a lumbosacral presentation, which, to my mind, would be the safest to the mother, especially if it was a very large fœtus. I might mention many of these different presentations to which, my experience teaches me, no one rule or mode of treatment will apply, especially in cases where there have been several hours of continuous labor. The ideal treatment of such cases is that by which a perfect aseptic condition should be obtained and presented where this is possible. The object of this treatment becomes changed to the application of means to diminish the activity of the septic organism and to secure the rapid renewal of their production, and to increase the resisting powers of the wounded tissue. I do not know how to sufficiently emphasize the importance and actual necessity of cleanliness in each and every detail. Not much can be expected from practitioners with unkempt surroundings, and who, in their actual daily practice, belittle their calling by their disregard of water and careless toleration of dirt. From the natural order of things they cannot be expected to follow the scientific principles in this branch of veterinary medicine.

PHLEGMASIA DOLENS, OR WHAT?[1]

BY C. McKIM, M.D.C.,
NORFOLK, NEB.

IN selecting this subject for my paper before this Association I have not done so thinking I know much about it, or that I can give you anything new or of importance in regard to it; but its being of rare occurrence and having happened in my practice at two different times, once in a cow and once in a mare, I was led or compelled to give it some extra study, so thought it might be of interest to you.

The definition of the word phlego is to inflame, and of phlegmasia dolens, or phlegmasia alba dolens, an acute œdema of the leg from venous obstruction, a white, firm swelling of the legs after delivery.

On March 25, 1898, I was called to see a cow belonging to our dairyman, which he said was one of his best milkers. On my arrival at his farm I found the patient in his cow stable (which was a very good one, well built, ventilated, drained and well lighted); the owner informed me the cow had calved a few days before—not stating just how many days—and apparently had no trouble in giving birth to the calf. The owner was also sure she had passed all of the placenta or after-birth, and he had thought, up to the day before my visit, she had been doing very well. Then he noticed a slight discharge passing from the vulva; she was restless and refused her feed, or only ate indifferently. She also strained some, and made frequent attempts to micturate. By examination per vulva and vagina, I found the mucous membrane injected; the os uteri was so firmly constricted I could not at first pass my index finger into it. I removed from the vagina long strings or masses of dark yellow or chocolate-colored mucus. The pulse was quick and frequent; I have forgotten now the degree of fever, but her temperature was elevated. She would lie down and be disinclined to rise, lying on her side and grunting.

My diagnosis was acute septic metritis.

As the cow had received good care and feeding and been in warm quarters, I could not say it was caused by neglect or taking cold, but considered it due to absorption of some septic material, probably part of the placental membranes; but I could not dilate the os sufficiently to get my hand into the uterus to make an examination. I introduced my female catheter through the os and flushed out the uterus and vagina with a solution of permanganate of potash, having the water as hot as I could bear my hand in it. This I injected with my injection-pump.

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[1] Read before the Iowa-Nebraska Veterinary Medical Association, Omaha, Oct., 1901.

This was repeated every other day at my visits, as the owner could not attend to it himself. It should have been done once or twice a day. After using the permanganate a few days I alternated with a lysol solution.

I also prescribed a fever mixture, and later a tonic or stimulant.

With this treatment the cow improved slowly, but on April 1st the owner came in and told me the cow was lame in the left hind leg. I promised to go out the next day. I did so, and found her suffering from a good deal of pain in the leg; it was swollen at and a little above the fetlock, and was hot and painful to the touch. I asked the owner if she could have hurt herself in any way, but he could not account for it at all. There were no signs of any injury. I, however, prescribed for a sprain—hot fomentations and bathing with a liniment, and bandaging. At my next visit, imagine my surprise and puzzle in finding the cow's leg swollen nearly up to the body, the swelling being œdematous, the lymphatics on the inside of the leg enlarged and corded. My first impression was: "Is it a case of lymphangitis?" But I thought not. I continued my hot applications and liniment, also the fever mixture, and instructed the owner to come in and let me know how it was the following morning.

I admit I was bothered to account for the conditions presenting in the case, unless I might call it septic infection from the uterus, and I did think of a pelvic abscess, but could not locate one, and the limb swelling first at the fetlock was a puzzle; but now I can account for it, if there was a venous obstruction. I had, a short time before this, secured Dalrymple's *Veterinary Obstetrics.*

I will now give you his description of my case, which I concluded was phlegmasia dolens:

"This condition," he says, "is more common in the human subject than in the lower animals. It appears, generally, a few days after parturition. It is due to an obstruction of the lymphatics of one or more limbs, or of the femoral or femoral and iliac veins, and is followed by œdema of the affected limbs. The cause is believed to be pressure of the uterus or thrombus, due to obstruction by some foreign material from the uterus."

The *American Text-book of Obstetrics* calls it phlegmasia alba dolens, and says: "It may be due either to phlebitis or to cellulitis. Often both conditions are combined. In the phlebitic form one or more veins form solid strings, and below the obstruction the extremity becomes œdematous and swollen. In the cellulitic form the skin is white or pink, tense and hard, one or both legs swell, and the epidermis may be lifted by a serous fluid, forming large vesicles. The inguinal glands swell. Suppuration and mortification may spread destruction in the connective tissue under the skin or between the muscles. This pernicious form, however, is rare."

(But in my case in the mare, as I will describe, I had all the above conditions.)

"Commonly the inflammation begins the second week after confinement. The lymphatics on the inside of one or both hind limbs become enlarged and corded, somewhat resembling lymphangitis. This is followed by œdema of the whole limb; the animal loses the power of the limb (in my cases this was only partial), first *at the fetlock*, then all of the joints become affected, and ultimately the patient gets down. On examination the limb is found to be swollen, hot, and very painful. The disturbance is considerable, and much fever is present; the pulse is hard, quick, and frequent; there is inappetence, and the secretion of milk much diminished. If the patient is carefully treated these symptoms gradually disappear, but in some cases it runs on. Inflammation of the tissues of the limb generally takes place, and abcesses form, chiefly at the hock. The animal may die from anæmia, septicæmia, or traumatic fever" (Dalrymple).

All these symptoms were marked in my case: the cow gave hardly any milk; a large abscess formed at the external lateral aspect of the hock, and I could pass my long probe for twelve inches up under the perforans and perforatus tendons and up under the postero-internal aspect of the limb. The discharge was of a yellow or creamy color, and the owner asked me if it was not the milk coming down that way.

Dalrymple says: "If the patient be a mare put her in slings. Give a laxative in all animals, followed by febrifuges and diuretics. Where the limb is very painful, hot fomentations may be used in the first stage, and judicious scarification if the effusion is considerable. Patients that will not permit of slinging should be turned every three or four hours. When the acute stage has been passed, bandaging will assist absorption, and diuretics, absorbents, and tonics should be given.

"The phlegmasia usually runs its course in from three to six weeks, and ends in resolution; it may pass into suppuration, and the patient still recover. As a rule, the thrombus is absorbed and the swelling subsides."

I followed the above treatment as suggested. The abscesses I treated twice daily with hot poultices and syringing out the cavities, when poultices were changed, with a lysol solution. The discharge per vagina was stopped, and the animal made a recovery in about six weeks.

On April 13, 1900, I was called out to see a large black mare. She had a colt about ten days old; the owner had thought her all right until this time, but she now began to refuse her feed, and seemed to be in pain. There was a discharge from the vagina, which he said had been so since she foaled. I could discover nothing but the discharge, and she disliked to have me examine the vagina, as if it gave her pain.

I left a wash for the vagina and a tonic and fever mixture—her temperature was about 102° F. The owner reported in a day or so that she was doing well.

On April 23d he came for me again, and when I got out to his place I found the mare in a good deal of pain; the left fetlock swollen and hot; she could not bear her weight on it very well. I could find no swelling or soreness higher up at this visit, but I suspected it was phlegmasia, and prescribed as above. On the 28th her leg was swollen nearly to the body, and all other symptoms of the disease were present. In a few days a hard, firm swelling appeared over the gluteal muscles of the left side, and I could detect it with my hand in the vagina. On May 5th, when I went out, I found her down and unable to rise. The owner said we might as well kill her. I found the abscess in the gluteal muscles ready to open, and made a long free incision, and I believe more than a gallon of pus escaped. This should have been opened several days earlier, but the owner had been in, and told me not to come out, as he thought it no use, but I went out on this trip anyway. After the pus escaped I took my long seton needle and passed it into the cavity until I could feel it through the vagina, and I made a good free opening into the vagina and about eight inches in from the vulva. Then I flushed the cavity out thoroughly with a permanganate wash. The mare got up before I left. I treated her similar to the cow, and she made a nice recovery in six or eight weeks, and is still alive and working, although away up in her teens.

A NEW TRYPONOSOMA IN CATTLE. Theiler, of Pretoria, has found in cattle a new tryponosoma, which Laveran has called tryponosoma Theileri. This parasite, which is peculiar to bovida and presents special characteristics, is pathogenic. It produces anæmia with or without fever. After the fever it may be found in the blood during several weeks. More rarely there is observed a pernicious anæmia with rapid destruction of the red blood cells and rapidly terminating in death. At the post-mortem, enlargement of the spleen and subpericardial ecchymoses are found; the red corpuscles are diminished in number, of variable dimensions, and some are nucleated.

In those cases of pernicious anæmia the tryponosoma cannot be found in the blood, but this blood inoculated into two calves reproduced the disease with the tryponosoma found in the blood.—*Rec. de Med. Vet.*

PARASITES IN THE BLOOD OF EPILEPTIC PERSONS. Essential or idiopathic epilepsy is regarded as a neurosis with anatomical lesions not well understood. Bra has found a micro-organism in the blood abstracted from the veins of the forearm of seventy epileptics.

During the intervals between the paroxysm the examination of the blood is negative, but before, during, and immediately after an attack the parasite can be seen under a magnifying power of at least 500. This micro-organism consists of small points of at least 1 μ, feebly refracting, isolated, or in chains of six or eight, and endowed with very rapid movements. The chains, usually formed by larger bodies at each end, are endowed with undulatory movements. When the chains are absent this organism appears as cocci-like bodies, isolated, free, attached to a red corpuscle or surrounded by a phagocyte

This microbe will stain, although not very well, with eosin, phenicated thionin and Kühne's blue. It is anaërobic and will grow on bouillon, gelatin and potato.—*Comp. rend. de l'Acad. de Science de Paris.*

DEPARTMENT OF CANINE, FELINE, AND AVIAN MEDICINE AND SURGERY.

By Cecil French, D.V.S. (McGill and Munich),
WASHINGTON, D. C.

Report on the Death of a Hyena at the National Zoölogical Park. The animal in question was a female, and, judging from its dentition, which was of recent completion, aged about eight or ten months. I saw it on the morning of May 24th, and found it lying prostrate on its side and apparently unconscious. Its pulsations were then about 100, and there was no appreciable fever present. The iris responded normally to light rays. Auscultation of the lungs and heart with the aid of a phonendoscope disclosed nothing abnormal. The general condition suggested cerebral compression. The history of the case obtained from the attendant keepers was as follows: The animal, in company with a mate of the same age, had arrived at the Park about a month previously in very poor condition, but had improved considerably under a bountiful diet of chicken, pigeon, etc., including bones and viscera.

About the 18th of May the animal began failing, and continued to do so untill the early morning of the 23d, when it was observed to move backward away from the bars of its cage and fall on the floor. After that it did not again rise on its four feet, but if propped up on its front legs would remain in that position for a few minutes at a time. Death occurred the night of the 24th–25th, and the body was conveyed to the taxidermist's laboratory at the Smithsonian Institution, where I made a necropsy at 1 o'clock on the 25th, the animal then having been dead some hours.

Briefly, the macroscopical lesions present were as follows:

Thoracic Cavity. It was here that the most pronounced lesions had taken place. The pleural and pericardial sacs contained a considerable quantity of clear sanguineous fluid, and the endocardium was highly injected, being almost black in places. Both lungs were greatly congested, the bronchioles containing mucus in profusion. In no part of the body examined was the blood coagulated.

Abdominal Cavity. The liver and kidneys were congested, but the spleen appeared normal. The stomach and intestines were empty, the former showing a few faint ecchymoses of the mucosa, the latter being apparently normal.

Head. On opening the cranium a quantity of subdural fluid was found present, and the superficial vessels of the brain were injected. The brain itself was exceedingly soft, falling to pieces during the process of removing it.

A noticeable feature about the reproductive organs of the hyena, and which were evidently normal, was the mammillate ovary possessed by this animal.

I removed portions of the liver, lungs, and pericardial fluid for microscopical examination.

From a bacteriological standpoint this case has proved to be of more than ordinary interest, for it has afforded a well-marked example of the capacity which certain micro-organisms possess of undergoing alterations in shape when cultivated on artificial media.

There were present in the liver, lungs, and pericardial fluid two micro-organisms. One occurred in chains and closely resembled the anthrax bacillus, but was much larger than the latter. It held Gram's stain. As this bacterium disappeared in the subsequent cultivation, it must be assumed that it was an anaërobic bacillus. The other micro-organism appeared as a coccus or extremely short bacillus, singly and in pairs. This caused us to suspect that we might be dealing with a member of the hemorrhagic septicæmia group of micro-organisms, and, inasmuch as the dead animal had been fed upon whole uncooked chicken, the prospect seemed bright of being able to trace its death to this source. But subsequent developments showed this hypothesis to be untenable.

Transfers from single colonies on agar plate, which had been obtained in pure form from the lung, to agar slants showed a distinct bacillus form. Grown on blood serum and potato it appeared about the size of the colon bacillus, and as the transfers fermented the three sugars and produced indol in Dunham's solution, and gave a moderate motility, it was, in fact, this micro-organism. Moreover, its pathogenesis further proved this, for 1 c.c. and 2 c.c. of a bouillon culture were injected into a young rabbit and a young guinea-pig intraperitoneally, respectively, and produced death by toxæmia within three hours. I recovered the micro-organism from the heart blood of these animals immediately after death. Two guinea-pigs and a rabbit were further inoculated subcutaneously with $\frac{1}{5}$ c.c. each, and developed local abscesses. A young chicken was fed on bouillon and agar cultures, but without any effect on its health.

With regard to the change in shape exhibited by this bacterium, the phenomenon has been recorded within the last few years by several bacteriologists, notably Professor Adami, of McGill University, in conjunction with Drs. Abbott and Nicholson.[1]

These gentlemen made the observation that the colon bacillus when injected into the circulation is quickly ingested by the endothelial cells in the liver, thereby being broken up into shorter lengths to resemble diplococci such as appeared in the tissues of our hyena. Furthermore, certain body fluids, such as ascitic and peritoneal fluids, sown with the typical form of the bacillus yielded the short diplococcoid growths under prolonged action. This modified form is non-motile and without the power to ferment the sugars and to develop the indol reaction.

Ordinary nutritive media also show the modified form quite frequently.

What caused the death of the hyena it is difficult to say. The anaërobic bacillus alluded to may have been responsible; but, on the other hand, its presence in the tissues may be accounted for by its possible entrance after death.

That the colon bacillus had something to do with it seems more likely, but our present limited knowledge of the pathogenic capacity of this micro-organism on the carnivora forbids a positive conclusion. It is generally believed that some initial lesion is necessary for its entrance into the system in such numbers as to produce profound effect. Drs. Reed and Carroll, of the Army Medical Museum, were able to produce hemorrhagic lesions in the stomach and intestines in dogs by intravenous injection of a member of the colon group, the bacillus X of Sternberg.[2] Some years ago a case came under my observation in which the animal, an aged bitch, died while suffering from acute inflammation, and ulceration of the intestines and extreme tape-worm infestation, together with focal necrosis of the liver.[3] On this occasion I also observed the presence of a micro-organism of diplococcoid form, and which, cultivated by Dr. Adami, proved to be the colon bacillus, and which seemed to be present in pure form, as none of the ordinary bacteria could be recognized. In this case an initial lesion might well have been produced by the burrowing proclivity of the tapeworm.

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[1] Journal of Experimental Medicine, 1899, iv. p. 349.

[2] Ibid., 1900, v. No. 3.

[3] Journal of Comparative Medicine and Veterinary Archives, 1900, xxi. p. 350.

But in the hyena there was no evidence of any lesion in the alimentary canal, the only tract by which the colon bacillus would have been likely to enter, unless it had sustained wounding at some earlier date by the passage of chicken-bones along it.

On the other hand, the prostration of the animal may have been the result of pathological changes taking place within the cranial cavity, the colon bacillus invading the circulation and producing the lesions within the thoracic cavity during the last hours of life while the vitality of the animal was reduced. There is some reason for considering this hypothesis because of the absence of the characteristic signs of the presence of fluid when I examined the thoracic cavity with the phonendoscope, an instrument with which the faintest sound may be detected.

The cause of death must, therefore, remain undetermined, with the probability that the colon bacillus figured in the matter.

CUTANEOUS LYMPHADENOMA IN A COW. Liénaux reports an observation of a cow, three years old and cachectic. The skin, excepting at the extremity of the legs, was covered with circular elevations 4 to 5 centimetres in diameter, slightly convex and smooth. These tumors were flat, slightly elastic, non-inflammatory, and covered with epidermis which was healthy, smooth or slightly scaly, and deprived of hair.

The nature of these tumors could not be recognized excepting for a tumefaction of parotid, sublingual, retropharyngeal, prescapular, precrural and supramammary glands. The diagnosis of lymphadenoma was proved by a histological examination of the tumors and counting of the blood corpuscles.

At the necropsy the deep lymphatic glands were also affected; the spleen and Peyer's patches were not hypertrophied.

The localization of lymphadenoma in the cow is a new pathological phenomenon and very rare in veterinary medicine. In human medicine it is quite common.—*Rec. de Med. Vet.*

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

LOCAL ANÆSTHESIA. Under certain conditions, as in certain operations, as well as in track horses, a prolonged local analgesia of a nerve trunk may be desirable. Morphine seems to have a local effect similiar to that of cocaine, but its action is more prolonged. For this purpose Pécus recommends the following solution for one injection:

Hydrochlorate of Cocaine	gr. 15
Hydrochlorate of Morphine	gr. 10
Distilled Water	5 grammes.

—*Rec. de Med. Vet.*

SYNDACTYLISM OF THE MEDIAN DIGITS IN ARTIODACTYLA. Lesbre, from his studies, concludes as follows:

1. Syndactylism, or fusion of the middle digits, may occur in the ox, pig and all other artiodactyla in which these digits are separated.

2. Although in ruminants this condition may be considered as an extension of the process of fusion of the metacarpal and metatarsal bones of the canon, nevertheless it is much less frequent in this species than in the pig.

3. This fusion may be limited to the region of the first phalanx; sometimes it may be complete, producing apparently a single digit.

4. This syndactylism in the pig is hereditary in a high degree, and has permitted Vasilescu, of Roumania, to create a soliped family of pigs. If this result has not been observed in the larger ruminants it may be due to the fact of insufficient observations and because animals so affected are slaughtered when young.—*Annales de Med. Vet.*

DERMOSAPOL. This preparation is a mixture of oil or other fatty body, lanolin, and paraffine, to which is added a sufficient quantity of an alkali to produce complete saponification; besides, other preparations which it is desired to be absorbed by the skin may be incorporated. This mixture, which is useful in dermatology, gynecology and surgery, may be combined with lysol, phenic acid, corrosive sublimate, etc., to disinfect the hands and the skin of the field of operation.—*Rev. Pharmac.*

Honthin. This is a combination of tannin and albumin analogous to tanalbin. It is dissolved in the stomach, but is soluble in the small intestine on account of the alkaline medium.

Honthin is a greenish-brown powder, tasteless, odorless, insoluble in water, but soluble in alcohol and in alkaline solutions. It is employed in diarrhœa in infants and in enteritis.

The dose for an infant is 25 to 50 centigrammes, repeated four or five times daily; for an adult, 1 to 2 grammes.

This preparation is non-poisonous, and does not produce malaise, vomiting, or gastric pain.—*Wien. Klin. Wochens.*

Experiments upon the Excitability of the Spinal Cord. The gray substance of the cerebrum is excitable and reacts to mechanical and electrical excitants. Vitzon experimented upon the spinal cord of birds and horses to determine whether the gray substance is excitable, which was generally believed not to respond to stimulations.

In birds the lumbar portion of the cord was exposed, and when the hemorrhage was arrested, about an hour afterward, mechanical excitation produced muscular movements of the posterior parts, especially the tail.

Similar experiments were made upon a horse previously anæsthetized with chloral. The lumbar portion of the cord was exposed and cut transversely. Mechanical irritation produced no effect, due to the loss of blood during the operation, but electrical stimulation of the cephalic, as well as the caudal stumps of the cord, produced tetanic contractions.

The author concludes from his experiments that the gray substance of the spinal cord, like that of the cerebral cortex, is excitable by mechanical and electrical irritation.—*Acad. des Sc. de Paris.*

GERMAN.

Clinical Notes on the Treatment of Various Diseases in Dogs. By Professor Albrecht, Munich. In a previous communication I referred to some observations on the use of protargol in veterinary practice. Recently I have again tried the remedy in a few local conditions in dogs, and give here the results obtained in these cases. The new indications for which I have utilized protargol comprises otitis externa and preputial catarrhs in dogs. In four cases the otitis was acute and in one of chronic character. In the former the disease had been present only for six or eight days before it came under observation. In the latter it had existed for four weeks. All the patients manifested a very severe itching and had a purulent offensive discharge from the external ear. For the treatment I made use of a 3 per cent. solution of protargol, of which one to two c. cm. were instilled into the external auditory meatus after previous careful cleansing. The meatus was then closed by pressure of the fingers upon the ear for three minutes, and not by plugging with gauze. Before the application of the protargol solution the ear was cleansed by means of a thoroughly sterilized piece of sponge in the grasp of a forceps, the sponge being thoroughly saturated with a 1 per cent. lysol solution. In all instances a cure occurred after ten days' treatment.

A fox terrier had suffered for some time with preputial catarrh. After the animal had been treated for sixteen days with injections of a 1 per cent. solution of zinc sulphate without improvement I directed the daily injection of a 3 per cent. protargol solution. Of this 5 c. cm. were employed each time, the preputial cavity being held closed for three to five minutes, and the fluid disseminated over the entire interior by means of gentle pressure. In a few days the discharge began to subside, and after eight days the dog was completely cured.

A bulldog suffered from phimosis of chronic character. In the course of several months it had been found repeatedly necessary to reduce the paraphimosis. When the dog came under my observation he presented, besides the above condition, an intense preputial catarrh with swelling of the foreskin. An operation was proposed by me for the relief of the phimosis, and was consented to by the owner. Before this could be done, however, it was necessary to remove the balanitis, and for this purpose I again employed protargol, at first in 3 per cent. solution. As this, however, proved ineffective I resorted at the end of eight days to a 6 per cent. solution. At the end of four weeks the catarrh was completely cured, and the operation could now be undertaken, the technique being as follows: The animal being anæsthetized the prepuce was split upon its dorsal surface upon a grooved director. The cut surfaces of the inner layer of the prepuce were sutured with silk to the corresponding surfaces of the external layer. Finally, from the inner layer there was formed a triangular flap which was stitched at the angle to the external layer. The operation was completely successful.

In a dog which, in consequence of purulent ophthalmia, developed a large corneal ulcer and presented also a very profuse catarrh of the conjunctiva, instillations of a few drops of a 1 per cent. protargol solution were made daily. At the end of fourteen days the eye was restored to a normal condition, except for the remaining cicatricial tissue, which was slight.

My colleague, Dr. Roth, has also employed protargol considerably in chronic cases of otitis and conjunctivitis, and has been so kind as to communicate to me his results, which are as follows:

Case 1. A St. Bernard, five years old, had suffered since 1899 from otitis externa, and had been treated for some time without success. The symptoms were a constant flapping of the ear, great sensitiveness to the touch, marked redness of the external meatus, and a profuse brownish secretion. The treatment consisted in the daily instillation of fifteen drops of a 3 per cent. protargol solution into the ear. As animals as a rule do not keep still a quantity was dropped in a small porcelain spoon and then poured in quickly. The ear was held closed, so that the fluid could not flow out, and a plug of cotton was then inserted. After eight days' use of this procedure the secretion ceased; the animal shook its head less, and the sensitiveness diminished. Instillations were then made at gradually longer intervals. After scarcely three weeks' treatment the disease, which had been present for two and one-half years, was completely cured.

Case 2. A St. Bernard, aged one and one-half years, had an otitis externa for six months, which was treated in the same manner as Case 1, and cured in about the same time.

Case 3. A shepherd dog, aged one and one-half years, presented the same symptoms as the above, and was cured in fourteen days.

Case 4. A German shepherd dog, aged two and one-half years, had an acute otitis externa of both ears, and was cured in sixteen days.

Case 5. A dog, aged four and one-half years, had otitis externa for some time. Besides the above symptoms there was a profuse and offensive discharge from both ears. After three days' treatment in the manner indicated the unpleasant odor disappeared and the secretion became less, and after eight days more a cure was obtained.

Case 6. A St. Bernard, aged four and one-half years, had an otitis externa for one-half year. The symptons consisted in a drooping of the left ear and frequent shaking of the head. The parts were extremely painful. The walls of the external auditory canal were covered with flat granulating surfaces which bled on the slightest touch. There was an abundant blackish discharge. The treatment was the same as in Case 1, the eroded places being covered with airol. After three weeks' daily treatment the wounds closed, the secretion was very slight, and the shaking of the head had ceased, and after thirteen days more a cure ensued.

Case 7. A St. Bernard, aged one and one-half years, with otitis externa, was cured in less than five weeks.

On the ground of these results Dr. Roth considers himself justified in stating that we possess in protargol an especially valuable remedy in otology, which, perhaps, surpasses all others in its rapid curative effect.

The two following observations may also prove of interest.

Case 8. A Scotch shepherd dog, aged nine months, suffered from an obstinate catarrhal conjunctivitis. The treatment consisted in two daily instillations of a ½ per cent. protargol solution of three to five drops. After five days the suppuration was much diminished, and after four days more a cure was obtained.

Case 9. A fox terrier, aged one year, had a purulent preputial catarrh. This was cured in the course of thirteen days by injections of a ½ per cent. protargol solution twice daily.

These observations, and especially those communicated by Dr. Roth in reference to protargol in the treatment of chronic otitis externa, are so encouraging as to incite to further experiments with the remedy.—*Wochenschrift für Thierheilkunde und Viehzucht*, No. 9, 1902.

REPORTS OF CASES.

A REPORT OF THREE INTERESTING CASES.

By George M. Boon, V.S.,
SOUTHWICK, MASS.

The following three cases possess some features of interest which, I trust, will render them worthy of record and also serve to illustrate a method of treatment which I recently found of service:

Case I.—A black mare, aged eight years. Diagnosis: Opening of the humero-radial articulation near side, as the result of injury from a barb-wire fence. This mare had been under the care of another veterinarian, who was called in at the time of the accident, three weeks previously, and sewed up the wound, which was quite extensive and required some dozen or more sutures. The opening into the joint was not discovered at the time, and may not have been present, but may have supervened later from the effects of her scratching to relieve the itching caused by the cicatrization of the wound. At the time of my first visit the mare was in great agony, and the synovial fluid was escaping from the joint through a fistula about three-sixteenths of an inch in diameter. It was ejected in spurts every two or three minutes, or about twenty spurts to the minute, these being augmented by isochronous movements of the limb. I informed the owner that the prognosis was grave, and advised the use of protargol, a supply of which I had just received. I made up a solution of protargol, forty grains to one ounce of distilled water, and ordered him to make an injection into the joint three times daily. This he did for ten days, at the end of which time the fistula was entirely closed up, and to-day, June 7th, nearly eight months later, the animal is sound and well, and, with the exception of a small scar, no one would ever suspect that any such accident had happened.

Case II.—A gray mare, aged ten years, a good roadster, has had a bad fistula of the withers for two years. She had been operated upon quite a number of times by several well-known veterinarians; but a month or six weeks after healing the fistula would reopen. I was called to see her on November 7, 1901, and found her in great distress, somewhat off her feed, and the withers very badly swollen on each side to the size of a child's head. There was a tendency to pointing on the near side close to the top. I immediately opened the swelling at this point, which was followed by an evacuation of a surprisingly large amount of pus—I should say there was a quart of it, at least. I then made an exploration of the cavity with a soft metallic probe, finding among other conditions a necrosis of several of the spinous processes of the dorsal vertebra. A plug of caustic potash was then inserted through the opening, which was allowed to remain until my next visit. November 9th, after throwing the animal, I removed the necrosed spinous processes, and made a free opening at the bottom of the cavity. I inserted a rubber tube through it at the top, thus promoting free drainage. I then washed out the cavity with a solution of creolin (Pearson), one ounce to one pint of water, after which I injected protargol, 40 grains; glycerin, 2 drachms; water, q. s. 2 ounces.

November 10th the owner informed me that the mare had acted better since this morning than for some time past, not being in such agony, and had eaten her breakfast and dinner with a relish. I again washed out the cavity with a solution of creolin (Pearson), and injected protargol in the same way as I had before. The owner being afraid to treat her himself, as he had been badly kicked by her the last time she was being treated, he requested me to give the case my personal attention daily, which I agreed to do. November 11th, the mare has a good appetite, and the pains seem to be entirely absent; in fact, she let me make an examination of the fistula without putting on a twitch to control her, which had never been done any time since she was first affected. I again washed out the cavity with a solution of creolin, and injected protargol. November 12th, 13th, and 14th, same treatment. November 15th, swelling of the parts has quite perceptibly diminished; treatment continued. November 16th, 17th, and 18th, no change in treatment. November 19th, the discharge has somewhat diminished in quantity; the odor is less marked, and the granulations look more healthy; treatment as above. November 20th and 21st, treatment is continued. November 22d, very little pus, and no odor to it whatever, showing the necrosis to be practically arrested. I removed the drainage-tube and washed out the cavity with creolin solution and injected protargol. November 23d, 24th, and 25th, no change. November 26th, the cavity and openings are healing nicely; the pus appears healthy, and the mare seems better, according to the owner's statement, than she has been for months; same treatment.

November 27th, 28th, and 29th, conditions improving; treatment continued. November 30th, fistulous opening at the top is closing up nicely, and very little if any pus is escaping from the bottom opening; continued treatment. December 1st, upper opening nearly closed, and the cavity healing nicely; same treatment. December 2d, parts healing nicely. The superior opening has closed entirely, and the lower one almost completely. I now discontinued the creolin solution, and confined myself to injections of protargol. December 3d and 4th, no discharge; protargol injection. December 5th, I did not see her, being absent from town on legal business. December 6th, lower opening closed. I now gave the owner instructions to bathe the parts morning and evening with witch-hazel and arnica, equal parts, for several weeks. December 25th, the owner drove the mare the first time in four months. He called to see me. She is now in perfect health, and the owner informs me that she drives better than she has in two years. June 2d, the mare is sound, is being driven daily, and is entered in one of the road races which we have here on one of our highways semi-monthly.

CASE III.—Bay gelding, aged nine years. March 28, 1902, diagnosis: Lacerated wounds of the cheek and parotid gland, with escape of salivary secretion and formation of pus, caused by a nail in the upper part of the manger, where he had climbed in trying to reach hay. Treatment: Sutures were inserted to hold the edges of the wound together, and cold-water irrigation employed, which was kept up until I saw him the next day. As the accident happened several days previously, I gave the owner to understand that a salivary fistula might be expected, as mastication produced quite an abundant flow of saliva over the sides of the cheek and gland. March 29th and 30th, cold-water irrigation continued. March 31st, I found abscess developing along the anterior border of the inferior portion of the parotid gland. I made a free opening of the lower extremity of the swelling, allowing the escape of pus, which discharged quite freely, and then washed out the pus cavity with a solution of creolin, 1 : 32, and injected protargol, 40 grains, to water, 1 ounce. I instructed the owner to do likewise twice daily until I called again. April 2d, the horse is doing nicely, and the swelling is almost gone; same treatment continued. April 4th, the owner informed me that I need not call again. May 5th, he again sent for me in haste to see the horse, and I found he had neglected him almost entirely. An ignorant quack of the worst kind had been called in to treat him about three days after my last visit. He informed the owner that by applying what he called a cast (a composition of wax, glue, and cow dung) over the opening that it would cease running and heal up at once. The result of this treatment was a quite large and diffused swelling of the side of the cheek and gland, which was filled with pus and saliva. I immediately shaved off this so-called cast, opened up the abscess at the old points, and inserted a rubber drainage-tube. I then washed out the cavity with a solution of creolin, 1 : 32, and injected protargol, 40 grains to 1 ounce of water, using about 2 drachms twice daily. This treatment I personally continued for one week, when I removed the drainage-tube, and continued the creolin solution and protargol injections for three days, after which the latter only were employed. At the end of a week the abscess was entirely healed and the fistulous tract completely obliterated, with no swelling or thickening of the gland or adjacent tissues. June 9th, having been called to see a cow at the same place, which had badly lacerated one of her teats with a barb-wire fence, I found that the horse at this time was perfectly well and that not even a scar remained to show that a fistula had existed. I would say in this connection that I also treated the cow with protargol, it being applied to the edges of the wound, which was coapted by three catgut sutures. I feel sure that under this treatment the wound will heal nicely, for the drug has acted almost as a specific in one or two simlar cases where the milk duct was badly cut and the secretion was escaping through the wound. July 21st, the last-mentioned case has entirely healed up, and except for marks of cicatrix no one would ever suspect anything having happened to her.

IMPACTION OF THE FOURTH FOLD OF THE LARGE COLON IN A HORSE, COMPLICATED BY STRANGULATION OF THE ILEUM IN THE FORAMEN OF WINSLOW—FATAL.

By John J. Repp, V.M.D.,
VETERINARIAN TO THE EXPERIMENT STATION, IOWA STATE COLLEGE, AMES, IA.

Subject. Bay gelding, used for driving, aged thirteen years, fifteen hands high; 1000 pounds weight.

History. Animal was seen by owner at 11 A.M., June 29, 1902, and appeared well. At 1 P.M., when attendant went to feed him the horse was found to be ill with colic. By way of treatment the owner had smoked his head and, as I afterward found, put an onion into his rectum. Owner said the horse had two good-sized passages of normal feces after his sickness was noticed. Was called at 3 P.M., and arrived half-hour later.

Observations and Treatment. Found the horse lying upon his side and pawing. He rose without urging. Peristalsis weak in small intestines; normal on right side; pulse, respiration, and mucous membranes normal; rectum empty; folding colon could not be felt; animal was in pain and pawed violently, almost continuously, while standing. There was no tympany.

A diagnosis of colic, probably due to exacerbation of chronic simple gastro-enteritis, was made. The pawing was very suggestive of impaction, but if the history was to be credited the attack was too acute for that. Five grains of morphine sulphate was given hypodermically. Then about three gallons of cold water was injected as high into the colon as possible. Part of this was expelled at once and part retained. No feces were passed. This was followed by a draught of an ounce of tincture of opium, 4 drachms of fluid extract of cannabis indica and 4 ounces of water. I left the animal at 4 P.M. in about the same condition that I found him. I had the owner procure three pints of raw linseed oil, with directions to give one-half of it as soon as he obtained it, which he did at 4.30 P.M. I also prescribed 1 ounce of fluid extract of cannabis indica and 4 drachms of Pearson's creolin, to be given in a little water, as a drench, at 5 P.M. if the horse still showed no marked improvement. This dose was given. The owner reported to me at 6 P.M. that the horse was no better. I arrived at the stable at 7 P.M. and found the horse quite violent. He pawed when standing, and struggled, rolled, and groaned when lying. The pulse and respiration were accelerated, the nostrils dilated, the mucous membranes injected; no feces and but little flatus had been passed since my call. Peristalsis was very weak on the right side and absent on the left. There was considerable tympany upon the left side, but it was not alarming in its manifestations. Contrary to my belief that the puncture really ought to be made upon the left side, I introduced a trocar into the right flank, but failed to get any gas, either because there was no gas in the cæcum or because I failed to penetrate it. Realizing from the beginning of my second visit that the case was a desperate one, I now told the owner that I would have to use radical measures if there was to be any hope of putting death off beyond an hour or two. With his consent I gave 15 grains of barium chloride in solution in 2 drachms of water into the jugular vein, and followed it immediately by 1.5 grains of strychnine sulphate subcutaneously, to guard against the depressing effect of the barium chloride. The horse almost immediately became more active than ever; peristalsis became active for the first time, and at a considerable distance loud borborygmi could be heard; large quantities of flatus were expelled with considerable force; the strychnine early asserted itself, and there was well-developed strychnine tetanus; the pulse was about 80 and strong; respirations 30 and forceful; the horse walked about in a circle when on his feet, and frequently lay down and rose again. After fifty minutes had passed without the appearance of any feces, I gave 10 grains more of barium chloride into the jugular. Peristalsis very soon became more prominent, and the expulsion of flatus was rendered more active. After an hour of waiting after the second dose without the passage of feces, only a few small masses of mucopurulent matter having been expelled, 5 grains more of barium chloride was given into the jugular. This manifested its action in a very short time by increased peristalsis and renewed expulsion of gas. But still no feces. It was now 11 o'clock, and the barium chloride having failed to act and the horse showing a tendency to become quiet, I gave 1 pint of raw linseed oil, and, as the heart appeared rather weak, gave hypodermically 1 drachm of fluid extract of digitalis. I left the animal quiet and with a fair share of strength, but gave an unfavorable prognosis, although I still had a hope that the oil might bring about a passage from the bowels. At 6 o'clock the next morning the owner telephoned me that the horse was apparently the same as when I left him the evening before. I went to see him, found he had had no passage of feces, and that his heart was quite rapid and very weak. I prescribed strychnine sulphate 3 grains, cocaine hydrochlorate 10 grains, water 3 ounces, to be given a half-ounce every two hours, with the hope of keeping up strength until the oil might move the bowels. At noon the owner telephoned me that the horse was lying quietly and had been all forenoon, but that no feces had been passed. An hour later he informed me that the horse had just died.

Autopsy, made four hours after death. The cæcum and the large colon were slightly displaced, but this probably occurred post-mortem, as the carcass was conveyed two miles. The floating colon was empty. The folding colon was replete with alimentary matter throughout. Especially so was the fourth part, which was quite distended with matter, which was harder and dryer the more it approached the termination of the fold, at which point its passage was stopped. The mucous membrane of both colons at this point was dry, covered with a tenacious, dry, dark-colored secretion, and apparently inactive. So here was an impaction at the junction of the folding with the floating colon. The stomach was well filled with food, but the small intestine contained only a small amount of fluid matter, which was in the ileum. The ileum at a point eight inches anterior to the ileocæcal valve, and again at a point four feet anterior to that valve, was engaged in the foramen of Winslow, the intervening three feet four inches of ileum having passed through the foramen, and lay as a loop beyond. The strangulation was effectual. It required considerable manipulation and traction to withdraw the intestine from the foramen. The intestinal wall throughout the strangulated portion was greatly infiltrated with blood, and was the seat of a violent inflammatory reaction. There was a flaky croupous exudate upon the mucosa.

I believe that the impaction in the colon was the primary cause of the colic, and that if it had been uncomplicated it would have run a much longer and less violent course. The impacted food had not yet become nearly so hard and dry nor so tightly wedged in as in two other cases of impaction at this point with which I have had experience. Unfortunately, however, the passage of the ileum through the foramen of Winslow and its strangulation there rendered the attack acute. There was thus superimposed the clinical picture of strangulation of the intestine and a condition which failed to yield to treatment, and brought on a rapidly fatal result.

PHYTOLACCA POISON IN CATTLE.

By G. R. White, D.V.S.,
NASHVILLE, TENN.

On May 20th I was called by 'phone from Winchester, a small town, the county-seat of Franklin County, Tennessee, situated eighty-five miles south of Nashville, at the foot of the Cumberland Mountain range.

The person at the other end of the 'phone informed me that five of his best young cattle out of a herd of thirteen were affected with some peculiar malady which in his as well as in his neighbors' opinion was a contagious disease of some character. I asked him to describe to me all noticeable symptoms, which he did, as follows:

"Without any apparent cause my cattle ceased eating four days ago, and are now in a 'bad fix.' I have five sick out of a herd of thirteen. They were at first constipated, but are now passing much mucus, together with clots of blood from the bowel. I also notice some shreds of intestine. They are lifeless, noses almost against the ground, ears flopped, eyes sunken, back arched, high fever, muzzle dry and hot, slight discharge from nose; almost constant straining in their endeavor to pass feces from the rectum. They are weak, and on this account stagger and stumble whenever they attempt to walk. Complete loss of appetite and cessation of rumination." I informed him that it would be impossible for me to make a diagnosis with any degree of certainty unless he could arrange in some way for me to see the cattle as well as the pasture upon which they had been grazing previous to the attack. He then told me to come at once and make an investigation. Upon my arrival I found the cattle suffering as he had described.

I pronounced the disease hemorrhagic enteritis, accompanied by dysentery, and began at once to investigate the cause. I questioned the owner in regard to the character of food the cattle had been eating. He informed me that they had been running at grass for the past few months, and to his personal knowledge had eaten nothing except what was obtained from pasture. I asked to be shown the pasture, which was a seventy-five-acre field, with plenty of grass and clover of a good quality. We searched this pasture from end to end, but failed to find anything that, in my opinion, would produce the trouble with which his cattle were suffering. We gave up in despair the idea of locating the trouble, and were returning to the barn, when the owner, for some unexplainable reason, informed me that he had allowed the cattle to run for two days on "a winter oat patch" which had been cleared of timber the year before ("new ground"). We visited this "patch," and found thousands of phytolacca plants ("poke stalk"). Hundreds of these plants had been eaten off even with the ground by the cattle, so my diagnosis was hemorrhagic enteritis, accompanied by dysentery, due to poison from eating phytolacca plants.

PURPURA HEMORRHAGICA.

By C. A. Paisley, V.S.,
WINFIELD, IOWA.

On June 1, 1900, I was called to see a mare, six years of age, exhibiting the characteristic symptoms of epizooty. General treatment was administered, with apparently satisfactory results; but on the evening of the 7th the patient began to show much uneasiness, with difficult breathing. The next morning the lips, limbs, breast, and abdomen were much swollen, and the general surface was rough with vesicles; petechial spots of a purplish hue were numerous on the mucous membrane, particularly of the nostrils; temperature much elevated; bowels constipated; urine highly colored; standing, and disinclined to move.

Potassium chlorate had been given every few hours since the previous evening until 2 P.M., when 30 c.c. of Pasteur's antistreptococcus serum was injected. The pulse at this time was 96; temperature, 105½° F. At 8.30 P.M. temperature was 105¾°; pulse, 96; the serum was again injected.

June 9th. Temperature, 103°; pulse, 80 in the morning; at noon, temperature was 103½°; pulse, 60.

10*th.* Morning: temperature, 105½°; pulse, 60. At noon, temperature was 104½°; pulse, 52.

Patient became convalescent until about the 22d of the month, when the petechial spots reappeared within the nostrils. The prompt administration of serum arrested the further development of untoward symptoms, and convalescence ensued with ultimate recovery.

During the course of treatment 130 c.c. of antistreptococcus serum was administered, the greater portion being used during the earlier period of the attack. Potassium chlorate and tonics were continued to the close of July.

Cracks and fissures appeared at the flexures of the hind limbs, from which there was a slight amber-colored discharge.

There was great debility, with almost complete loss of appetite in the earlier period of the disease.

EDITORIALS.

OUR FRONTISPIECE.

We are very glad to be able to reproduce in this number of the Journal the picture of Dr. Thomas B. Rayner and his late son, Moncure Robinson Rayner, the donor of the new library to the Veterinary Department of the University of Pennsylvania and the one in whose name it is dedicated. Surely a grand memorial to one whose life work was planned for the field of veterinary science, but cut down suddenly, in his studentship and just on the eve of the age of manhood. Such gifts attest a parent's love, bless the donor thereof, and add a priceless blessing to the future profession.

Minneapolis will prove an attractive city for our convention. There is much to be seen within the city that is attractive, while around and about her are beautiful lakes where a day's stay will be a pleasant and profitable diversion.

A. V. M. A.

We have been notified by Secretary Stewart that the programme for the Minneapolis meeting is nearing completion, and the following papers have been promised, with several more under consideration:

"The Veterinary Profession, Past, Present and Future," by Professor D. McEachran, of Montreal, Quebec. "External Ulcerative Ano-vulvitis of Cattle," by Dr. J. J. Repp, of Ames, Iowa. "So-called Contagious Ophthalmia of Cattle," by Dr. T. D. Hinebauch, of Fargo, North Dakota. "Hospital Management of Dogs," by Dr. Chas. E. Ellis, of St. Louis, Mo. "Serums and Serum Therapy," by Dr. E. A. A. Grange, of New York City. "The Relationship of Veterinary Science to the Medical Profession," by Dr. D. King Smith, of Toronto, Ontario. "Barrenness in Bovines," by Dr. Chas. Schmitt, of Dodgeville, Wis. "Poisonous Stock Foods," by Dr. N. S. Mayo, of Manhattan, Kansas. "Malarial Fever in the Horse," by Dr. F. Torrance, of Winnipeg, Man. "Some Features of the Texas Fever Problem," by Dr. W. C. Rayen, of Nashville, Tennessee.

Titles of papers by the following members have not been ascertained: Dr. W. Horace Hoskins, of Philadelphia, Pa.; Dr. Leonard Pearson, of Philadelphia, Pa.; Dr. S. D. Brimhall, of St. Paul, Minn.; Dr. J. S. Anderson, of Seward, Neb.; Dr. W. L. Williams, of Ithaca, N. Y.; Dr. M. E. Knowles, of Helena, Mont.; Dr. C. A. Carey, of Auburn, Ala.; Dr. M. Jacob, of Knoxville, Tenn.; Dr. C. H. Howard, of Calumet, Mich.; Dr. R. P. Lyman, of Hartford, Conn.

The West Hotel has been selected as headquarters and the meetings of the association will be held in the assembly hall of the hotel. The local committee have secured rates from a number of hotels and private boarding houses near to the headquarters, and a list of these with address will be sent to all the members that they may arrange for quarters prior to the meeting. The fact that the Minnesota State Fair will be in progress at that time will make it necessary to engage apartments before arrival in order to make sure of them.

The railroads have granted a one and one-third fare transportation, on the certificate plan. Those living within the concessions of the State Fair may secure a better rate.

The local committee of arrangements are planning many special features for the entertainment of all who come and more especially the ladies. The numerous beautiful lakes and pleasure resorts in close proximity to the twin cities of the North offer many attractions, and particularly among these is Lake Minnetonka, upon the shores of which it is proposed to hold the banquet in which it is hoped that the ladies will have a part.

The new building for the Veterinary Department of the State University has been completed, and in this building there is a clinic room with an amphitheatre, and arrangements are about completed for a series of demonstrations of surgical procedures at the clinic to be held at the close of the meeting.

MR. W. W. DIXON, the Chicago representative of the well-known firm of E. R. Squibb & Sons, will accompany the members of the "Journal Special" from Chicago to Minneapolis. Mr.

Dixon is located at the Plaza, Chicago, where he purposes entertaining all those who are going by the "Journal Special" with a luncheon at the Hotel Plaza, and afford them a magnificent view of Lake Michigan and Lincoln Park.

Those going by the "Journal Special" will be privileged in going or coming to stop off at Niagara Falls for a stay of three or four days. This feature of the trip should attract all those who have never seen this wonderful feature of our country.

Drs. A. H. Baker and Joseph Hughes, of the Chicago Veterinary College, extend a very cordial invitation to those who anticipate attending the Minneapolis meeting, and who may remain in Chicago for a few hours, to visit the Chicago Veterinary College. Those going by the route selected by them are invited to dine with them en route to Minneapolis.

Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, will be among those who will accompany the "Journal Special" to Minneapolis, Minnesota.

Dr. W. C. Holden, of Delphos, Ohio, will be among those on the "Journal Special."

One of the ways that some of the Eastern veterinarians are planning to reach Minneapolis is as follows: From Philadelphia to Buffalo and return; Buffalo to Chicago by lake, returning by rail; Chicago to Minneapolis, at an estimated cost of $130. Where two occupy the same berth the expense will be reduced ten dollars. The lake route affords 1000 miles on the water; the time consumed thereby is three days and two nights. Those who go by this route will have to leave Buffalo on Tuesday, August 26th, in order to arrive in time for the opening of the convention. The one and one-third rate over the "Burlington Route" from Chicago will be afforded to all who use this line, up to and including the last day of the convention.

NECROLOGY.

Dr. Charles Faivre, of 2435 Fairmount Avenue, Philadelphia, Pa., an old and esteemed practitioner, died in June, aged sixty-five years. Dr. Faivre was born in France and received his training in that country. He spent five years in Africa under the French foreign veterinary service. He leaves a wife and five children.

COMMENCEMENT EXERCISES.

VETERINARY DEPARTMENT, UNIVERSITY OF PENNSYLVANIA.

THE one hundred and forty-sixth annual commencement exercises of this department was held on June 18th, at 11 A.M., in the Academy of Music. The exercises were participated in by all the departments of the University. After invocation and hymn, "Our Father in Heaven," the orator of the day, Dr. Nicholas Murray Butler gave an excellent address. Singing of hymn, "Hail Pennsylvania," then conferring of degrees. There were twenty-two graduates—Sumner C. Babson, Gloucester, Mass.; Howard Baker, Dudley, Mass.; Harry C. Bassler, Philadelphia, Pa.; Fred C. Bigelow, Philadelphia, Pa.; F. Henry Bradley, Newport, R. I.; Samuel Burrows, Cleveland, Ohio; Guy T. Cole, Norwalk, Ohio; Herman H. Delano, North Duxbury, Mass.; Hyma Feigenbaum, Pittsburg, Pa.; Frank U. Fernsler, Lebanon, Pa.; William H. Glass, Philadelphia, Pa.; Arthur A. Harmon, Chelmsford, Mass.; Joseph A. McClintock, Philadelphia, Pa.; Anthony J. McCloskey, Philadelphia, Pa.; George L. Nicholas, South Bethlehem, Pa.; Kenneth E. Paget, Scranton, Pa.; Robert O. Rothermel, Reading, Pa.; Oscar F. Stearns, Philadelphia, Pa.; Joseph W. Vansant, Hulmeville, Pa.; Frederick Weitzel, Allegheny, Pa.; Benjamin T. Woodward, Philadelphia, Pa.; John H. Zollinger, Philadelphia, Pa.

Singing of hymn, "Now Thank We Our God;" Benediction.

The regular annual meeting of the Alumni Society was held in Houston Hall, followed by a smoker in place of a banquet.

Veterinary Surgeon Desmond, of Adelaide, South Australia, has reported upon several new conditions among domesticated animals and poultry in that country. Actinomycosis has been noted and reported upon. Among other unusual cases was an endothelioma in an aged stallion. The tumor weighed thirty pounds. Leukemia in poultry from a specimen exposed for sale in the open market is also reported upon.

AMONG THE COLLEGES.

Grand Rapids Veterinary College. Prospectus for this college, 1902-03, has been received, and the following changes noted in the faculty: W. W. Sammis, D.V.S., as Professor of Materia Medica and Therapeutics, in place of M. T. Banasawitz, M.D., D.V.S.; W. A. McLean, V.S., Dean, Professor of the Principles and Practice of Veterinary Medicine and Lecturer on Anatomy, in place of Coleman Nockolds, V.S., M.D.; Wm. E. Bessey, M.D., D.V.S., Professor of Comparative Physiology, in place of Charles N. Nye, D.V.S.; C. F. Haight, D.V.S., Registrar, Lecturer on Chemistry and Urinalysis, in place of A. W. Olds, Ph.C. Added: W. E. A. Wyman, M.D., V.S., as Professor of Physical Diagnosis of Lameness and Assistant to the Chair of Surgery; Allen H. Williams, M.D., as Professor of Bacteriology. Dropped: Alva Sherwood, B.S., D.V.S., Professor of Obstetrics and Assistant to the Chair of Surgery; C. E. Dornheim, Assistant Demonstrator of Anatomy; A. B. Warrener, Assistant to the Chair of Surgery.

Indiana Veterinary College. Graduating class, 1901-02: Oliver F. Campbell, Flora; William S. Eubank, Martinsville; Herbert F. Jones, Oaktown; Franklin F. Jacobs, Indianapolis, Indiana; Henry H. Lehman, Lattasburg, Ohio; Don McMahan, Noblesville; Guy C. Meskimen, Vincennes; Schuyler M. Wells, Bloomfield; Charles E. Morris, Rushville; Ondis A. Nelson, Jamestown; Herbert L. Parker, Danville; David F. Shake, Carlisle; Thomas A. Sigler, Greencastle; Mellbourne S. Tucker, Franklin; Albert H. Wacker, Indianapolis; Ira G. Wimsett, Dana; Henry O. Woodrow, Clay City, Indiana.

The eleventh annual announcement of this college for session of 1902-03 has been received, and the following changes noted: Among the officers, Alfred S. Jaeger, B.A., M.D., President, in place of Samuel E. Crose, A.M., M.D. George H. Roberts, V.S., has been added to the faculty as Professor of Cattle Pathology. There will be special Lecturers on Meat- and Milk-inspection.

The Dog, an illustrated international fortnightly, has just made its initial appearance in Philadelphia.

SOCIETY PROCEEDINGS.

REPORT OF THE COMMITTEE ON INTELLIGENCE AND EDUCATION.[1]

BY JACOB HELMER, D.V.S., Chairman of Committee,
SCRANTON, PA.

A FEW years ago in this country instruction in the scientific practice of veterinary medicine was an exception in the literature to which the English-reading and speaking veterinarian had access. Only a few valuable English works were on the market. Yesterday a professional library in the office of a veterinarian was a curiosity; to day the practitioner who does not possess one is liable to the charge of being non-progressive. Without a library for reading and reference it is impossible to keep abreast with the educational advancement around us.

The fact that new books continue to appear shows that there must be an increasing demand, and the more we become a professional body of readers the more and better literature will be placed at our disposal to read.

Among the more recent additions we find:

"Outlines of Clinical Diagnostics of the Internal Diseases of Domestic Animals," by Professor Dr. Bernard Malkmus, of Hanover, Germany, translated by Drs. White and Fisher; "Diseases of Poultry," by Dr. D. E. Salmon, Chief of the Bureau of Animal Industry; "The Sheep," by Dr. William A. Rushworth; "Anatomy of the Cat," an introduction to mammalian anatomy, by Professors J. Reighart and H. S. Jennings, of the University of Michigan; "The Diseases of the Cat," by J. Woodruff Hill; "The American Book of the Dog," edited by G. O. Shields, Coquina, editor of "Recreation;" "Veterinary Materia Medica and Therapeutics," by Kenelm Winslow, of Harvard University; "Compendium of Bacteriology and Blood Serum-therapy," by Professor Paul Jess, Charlottenberg, Germany, translated by Professor Paul Fisher, of the Veterinary Department, Ohio State University; "Text-book of Ophthalmology for Veterinarians," by Professor Moeller, of Berlin, translated by Professor Paul Fisher; "Lameness in Horses," by Professor Joseph Hughes, of the Chicago Veterinary College; "Bovine Obstetrics," by M. G. Debruin, Instructor of Obstetrics at the State Veterinary School, Utrecht, translated by Dr. W. E. A. Wyman; "Synopsis of Professor Quitman's Lectures on Veterinary Materia Medica in the Chicago Veterinary College;" "Synopsis of Professor Baker's Lectures on Theory and Practice of Veterinary Medicine and Surgery in the Chicago Veterinary College;" "Clinical Veterinary Medicine and Surgery," by Professor P. J. Cadiot, Alfort Veterinary School, France, translated by John A. W. Dollar; "Manual of Veterinary Microbiology," translated and edited by Dr. R. R. Dinwiddie, of the Arkansas State University, Agricultural College, and Experiment Station; "Guide to Practical Meat-inspection," by Dr. F. Fishchoeder, Germany, translated by Dr. A. T. Peters, Investigator of Animal Diseases, United States Experiment Station, University of Nebraska; "Methods of the Examination of Milk," compiled by Dr. Paul Sommerfield, of Berlin, translated by Dr. A. T. Peters and R. S. Hiltner, A.M., of the University of Nebraska. A few of the older standard works on milk-inspection are: "Analysis of Milk and Milk-products," Leffman & Beam, published by Blakiston, Son & Co., 1012 Walnut Street, Philadelphia, Pa.; "Outlines of Dairy Bacteriology," by H. L. Russel, sold by the author, address, Madison, Wisconsin; "The Chemistry of Dairying," by Harry Snyder, Chemical Publishing Co., Easton, Pa.; "Testing Milk and its Products," by Farrington and Wall, Mandota Book Co., Madison, Wisconsin; a valuable pamphlet entitled "The Newer Remedies," by Koblentz, published in New York; "Special Surgery of the Upper Air-passages of the Horse," by Professor L. A. Merrilat, of the McKillip Veterinary College, Chicago; "A New Work on Veterinary Medicine," in four volumes, by Professor James Law, Veterinary Department, Cornell University.

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[1] Presented at the annual meeting of the Pennsylvania State Veterinary Medical Association, March, 1902.

The valuable catalogues of standard veterinary publications sent free by William R. Jenkins, 851 and 853 Sixth Avenue, New York, and by Alex. Eger, 34 East Van Buren Street, Chicago, Ill., should be in the hands of every veterinarian in the United States.

But whether a practitioner considers he can or cannot afford all the standard works, he should at least avail himself of the veterinary journals published here. A foreign journal would also be good, as well as a professional periodical on human medicine and surgery.

We should not forget that our American veterinary journals are what we, as a profession, make them. No editor alone can keep a magazine afloat; besides, its intrinsic value will always largely depend upon the co-operation of the profession with its brains and patronage.

In July, 1901, both the scientific and lay world were surprised and shocked by Dr. Koch's announcement at the British Tuberculosis Congress, in substance, that the human family is practically immune to bovine tuberculosis. Should Dr. Koch's conclusions prove true, said fact will not obviate the necessity of inspection of animals and their products and the control work now so rapidly developing in this country. An owner will always desire to weed from his herd any insidious and fatal malady and avoid its reintroduction. Consumers of meat and milk will want only pure and wholesome products. In Germany, where it is the national custom to boil the milk and thoroughly cook the meat, there is no apprehension of disease or uncleanliness. But this prevailing custom there did not prevent tuberculosis from ravaging the herds of Germany until that government was compelled to inaugurate sanitary measures for the control of the spread of the disease.

Because his name is so intimately associated with our knowledge of the subject of tuberculosis, Dr. Koch was the one to raise the question of that most desirable condition, "Immunity of the Human Family to the Bovine Disease." That there is a reasonable chance for such a question there can be no doubt, and in asking it Dr. Koch was honest. It is fortunate, however, that the idea was introduced at the Tuberculosis Congress, because that body challenged Dr. Koch's self-assured position, thus lessening the disintegrating influence upon sanitary work of his practically unsupported conclusions.

It is a credit to the State of Pennsylvania, and a fact of which we should be proud, that our State Live-stock Sanitary Board, with its laboratory for original research, had anticipated the experimental work of Dr. Koch by several years, which results are diametrically opposed to those propounded by Dr. Koch. (See Ravenel's report to the Tuberculosis Congress). Still, more recently, Dr. Ravenel, speaking of the subject, said as follows: "We have had in the laboratory evidence absolutely confirmatory of our former position. We have just published the fourth case of infection of man by bovine bacillus. On the other hand, we have obtained a culture of the tubercle bacillus from the mesenteric gland of a child, which is extremely virulent for cattle, proving either that the human bacillus has at times a virulence for cattle equal to the bovine, or else that the child in question was infected in the first case by the bovine organism. We have had four calves die from inoculation with the human bacillus, and now have a grown animal at the point of death."

During 1900 Drs. Brimhall and Wilson, of the Minnesota State Board of Health, issued a complete and interesting report on a highly contagious and infectious disease of cattle which it had been their privilege to investigate during the summer.

According to the report, ecchymotic spots and hemorrhagic areas were found in nearly all the organs and tissues of the body. Lesions were practically limited to hemorrhagic phenomena. Bacteriological investigation of morbid material resulted in the isolation of the bacillus identified as belonging to the hemorrhagic septicæmic group, of which chicken-cholera, rabbit septicæmia, and swine-plague are members. An infectious disease among wild animals and oxen in Germany has been described and identified as also belonging to the same group.

It appears that Dr. Brimhall and Dr. Wilson were the first in this country to isolate a pathogenic organism from a disease in cattle, which organism resembles and was classified with those producing the hemorrhagic septicæmic group of disease described by German writers.

During the last few years there has appeared in Pennsylvania, chiefly in Carbon and Wayne counties, a disease analogous to that described by Drs. Brimhall and Wilson, of Minnesota.

Descriptions of the symptoms, progress, and termination of the disease, as well as the post-mortem findings, are practically the same in the two places. Thus far the bacteriological work on the disease in this State has been futile, as far as the discovery of the bacillus of Loeffler and Schutz or any other pathogenic organism is concerned. Further, all attempts at direct experimental inoculation from one member of the bovine family to another have failed. The disease appears to be neither contagious nor infectious. It ceases to spread in a few days after the herd has been placed in a field other than that in which the malady originally appeared. Hence it appears to be caused and spread by contaminated food only. The problem has not yet been solved in Pennsylvania.

We are pleased to note the claim made by Copeman, of England, that he has isolated the germ of dog distemper, and has succeeded in producing a vaccine virus which will give immunity to dogs. Prior investigators have made similar claims, and highly vaunted vaccines have been placed upon the market, but as yet we are without the real thing; therefore, let us hope that Copeman has furnished us with an effective means of prevention of the dreadful scourge known as dog distemper. The other most important advances in the bacteriological field during the last year have been in the study of the specific reactions of the blood of different animals. Behring, in Germany, has announced his ability to immunize cattle against tuberculosis. Luclainche, in France, has received a prize from the Academy for the production of a curative and immunizing serum against hog-cholera (most probably our swine-plague); 30,000 animals have been treated, with results ahead of those obtained by diphtheritic serum in human beings.

The recently issued Bulletin No. 79, on Rabies, by Dr. Ravenel, is a most valuable contribution to our literature on this disease. The bulletin excels in that it describes and illustrates the method of diagnosing rabies by means of a microscopical examination of the cervical glands.

By this method a diagnosis can be made in from six to thirty six hours. The idea originated in Europe, but our State Live-stock Sanitary Board was the first to develop and introduce it in this country. When we reflect that the old method by inoculation required several days, and the diagnosis was not more certain, the importance and advantage of the one-day method must be appreciated.

Much research and experimental work has been continued in the laboratory of the State Live-stock Sanitary Board during the past year. The work is of exceeding economic value to the State. It deals with the contagious and infectious diseases of our domestic animals, and furnishes sure means of diagnosis upon which depends rational treatment and prospective eradication of disease. Its work fosters health and protects the lives of the people. Its problems require exact solution, and each result is a stepping stone in the growth and progress of the profession. Recent experiments have been conducted there to demonstrate the varying susceptibility of animals to inoculation tuberculosis and establish the identity of the disease in human and bovine subjects. Again, by what means the disease is extended in stalled herds and the conditions most favorable to rapid expansion; the value of sanitation to cure the malady in the incipient stage and to retard its progress in the more advanced stages; the influence of unsanitary conditions and surroundings upon the spread of the malady in the herd and upon the progress of the disease in victims under unfavorable conditions; the comparative value of curative measures; the development of points in diagnosis and how the tubercle bacillus may enter the milk; practical sanitary measures for the repression of tuberculosis on a large scale as in this State, not only tuberculosis, but anthrax, black leg, and other contagious and infectious maladies against which it aims to fortify farmers free of charge; it has devised a practical method for the treatment and eradication of contagious abortion in herds; tested the value of various disinfectants used in destroying the morbid products and virus of disease; it has demonstrated that the cattle in this country may and do suffer from a lung trouble resembling pleuropneumonia, but caused by a fungus growth in the lungs—the aspergillus fumigatus; it is now at work upon a hitherto unrecognized and fatal malady among cattle in this State resembling anthrax, but which disease does not appear to be contagious. The work of the laboratory is increasing each year in the number of problems presented, the demands of the farmers, and the morbid material sent by veterinarians and others for examination and diagnosis.

When we reflect upon these things we know that the veterinary profession in this State would practically be at sea without such a laboratory. It would be groping in the darkness on scientific problems for want of a searchlight, which also prevents retrogression. The laboratory is a school to each intelligent and progressive veterinarian. It means a place for him to send specimens, report the cases of difficult diagnosis, and receive instructions free of charge. It is open daily for his use.

But in addition to the work of the character mentioned, the laboratory is self-sustaining. It has manufactured for use in the State more than enough tuberculin, vaccines, and mallein to defray the cost of its maintenance. Its products for free distribution if purchased in the market would cost the State more than annually the whole expense of the laboratory and the research work done there. The laboratory is supported by a special appropriation from the State. Originally the amount was $12,000 for two years. In 1900 the appropriation was cut to $8000 for two years; last year we asked for $6000 and were granted $5000. Now, suppose that the State grants us $5000 a year for the support of the laboratory, and the latter furnishes products to the amount of more than $5000, what has the laboratory cost the State? Again, consider the value of the original discoveries and the knowledge imparted. But the original object of the State in creating the laboratory was to protect her extensive live-stock interests, which are estimated to suffer six million dollars annually from preventable causes. In the light of this comparison, what does not the State owe the laboratory? Instead of $5000 it would pay the State of Pennsylvania to appropriate for this laboratory $50,000 for its use and expansion to meet the ever-growing need of such work. We feel sure that were this subject properly presented and if the majority of our legislators could be brought to understand the matter thoroughly ample funds would be provided. As it is we do not complain, but it would seem necessary that more money be forthcoming in the future, in order to meet the ever-increasing demand upon the laboratory for scientific work. If each veterinarian would educationally influence his legislative members and induce friends to do so, we could have for our laboratory all we need and want. Just in proportion to the degree of unity and harmony in our ranks will our efforts be characterized by strength and rewarded with success.

The question of what effect mechanical inventions tending to displace the horse will have upon the future of the veterinary profession is one which has caused deep interest and concern everywhere, but especially to the practising veterinarian. Common-sense teaches us that the effort to do the world's work with machinery is not spasmodic or unreasonable. The automobile in its present crude and unsatisfactory form is yet perfect enough to guarantee its permanency. Instead of the so-called fad disappearing, it will continue to increase, and each season will bring forth better machines for less money, and more of them.

No one will deny the fact that the vast majority, if not all veterinary students, enter the profession because they think there is money in it; because the profession is not crowded, and that it will afford them a better livelihood than anything else at hand. If, later in life, a few find that they were adapted to the requirements of the profession, it comes to them as a surprise.

As in all professions, the young veterinarian longs for a city practice, which, in many instances, proves an alluring pitfall. Undoubtedly the cities afford a more lucrative practice, because cities contain many horses in a small area, because there is something to do; besides, there is money with which people are willing to part with in order to have their animals properly cared for.

To veterinarians outside of cities the automobile question has little interest. There will always be as much veterinary work to be done in the country as now. The question will not affect men who fit themselves for State and Government employ and receive a salary. The city veterinarian is the only one who will be injured by the successful advent of the automobile for semi- and heavy-draught purposes.

There can be no longer any question about the application of sufficient power to road vehicles for all purposes. The machines develop sufficient power to climb the highest mountains; then, again, the power cost is merely nominal—a few cents a day. In successful business it is necessary to reduce expenses. If a machine can be utilized that is cheaper than a horse the latter will disappear. Machinery has in the past displaced many kinds of hand work and thrown thousands out of employment. Labor-saving machinery has been a potent agent in the production of hard times.

There is no more sentiment about the use of horses than about the use of man. The moment the horse cannot compete with the machine out he goes. These are facts for the young veterinarian, now on the first round of his professional ladder, to contemplate.

If to-day you should step into France, the birthplace and home of the automobile, you would find their manufacture a booming industry. Exhibition upon exhibition is the thing of the day, and, without doubt, the demand will increase. Thus far the application has been limited practically to small and fancy vehicles for pleasure. Light draught vehicles have not been produced in anything like the same proportion, and but few heavy draught machines are seen; hence we see that the automobile is very popular in France. Its application to semi- and heavy-draught purposes is only a question of time.

But in his struggle for survival against the automobile the horse has a few factors in his favor. The machine, in its present form, must have smooth and dry roads—macadamized roads or their equivalent—the year round. Most machines are so constructed that during cold weather heat is rapidly abstracted from the exposed generators; hence the machine suffers or burns from the increased amount of combustion necessary to supply sufficient power. The automobile in its present form is better adapted to a warm than a cold section, to a dry than a wet locality, to a level than a hilly country. The question of its utility at the present time is one of locality. The horse is adapted to the world, and but few conditions are fatal to him.

The great problem with the inventor is not how to make a machine go, but how to protect it from the disintegrating influences contingent upon bringing it into use to meet all the requirements under favorable conditions at the least possible cost. If automobiles could be run on rails the inventor's dream would be speedily realized; but is not this realization far off? One by one we see the large automobile concerns for heavy draught machines in our large cities going to the wall. On the other hand, the wagon and carriage business is prosperous; and while wagon materials of all kinds are much higher than a few years ago, nearly all manufacturers report a greatly increased trade. The automobile has not thus far displaced the horse for any purpose, because people who have means to purchase machines cannot afford to try to get along without horses.

Concerning matters of legislation, Stiles' Bill No. 51, introduced in the Legislature last spring, was a surprise of no little importance to the veterinary profession in Pennsylvania.

The bill provided for the reopening of the veterinary registry lists throughout the counties of the State for one year, on the ground that there were still men unregistered who were legally entitled to register under the old law, and who, for one reason or another, had never taken advantage of the opportunity.

The defeat of this obnoxious bill was just, and serves to show what may be accomplished by united effort; but while we did exceptionally well and have reason to congratulate ourselves, yet there is reason to believe that we might have done better. Had we contended not for the defeat of this bill but for its amendment only, and had been successful, it would have had the effect of breaking the decision of Judge Schuyler, of Easton, viz.: that you cannot limit the time of registration of one who is legally entitled to register. At the same time the Board of Examiners could have accorded it the power to examine the credentials of those who might present themselves as legally entitled to register according to the decision. It follows that those not able to prove their claim could no longer find protection under the decision, which, by such a method, would have been rendered imperative. Having lost the opportunity afforded last spring, it now behooves the Board to evolve some other plan. As it stands Judge Schuyler's decision is right and just. It is a strong decision, and one that cannot easily be broken. There is an old saying, "If you cannot stem the tide, float gracefully with the stream." Obey the decision, make provisions for such old men as can show they were legally entitled to register under the law. Thus Judge Schuyler's decision may prove a help instead of an obstacle—a hint to clear the field for proper and successful action.

Another interesting bill last spring passed both Houses of the Legislature, and received the signature of the Governor. This ingenious piece of legislation aims to secure a pure and wholesome milk-supply for cities of the second class only. In such cities it provides that the sale of milk shall be contingent upon the possession by the seller of a proper license issued by the Department of Health through Councils. The bill empowers Councils to enact legislation requiring all herds that furnish milk to the city to be properly inspected by a veterinarian. It provides both for a physical examination and the tuberculin test. The bill covers the ground of complete inspection at the fountain head—the dairy. It has a few faults, but contains all that is necessary. It is a workable bill, not being too heavy or rigidly exacting. It is to be regretted that the bill does not become the organic law of the entire State. It serves also as a good illustration of what can be done to secure legislation when those desiring it do not ask for the earth.

It is gratifying and portentous that such a widespread interest prevails in the matter of good roads; at least, the work is growing along educational lines.

At the International Good Roads Congress, held in Buffalo in September, 1901, some very valuable papers were read by representatives from a number of the States.

The Committee of the Third Annual State Good Roads Association, which met recently in Albany, reported the following among the recommendations for legislation :

1. That the State be asked to appropriate one million dollars this year for good roads.
2. That improved highways be maintained by the State, the expense to be proportioned between the State, the county, and the town.
3. That a wide tire law be enacted.
4. That a change from the labor to the money system of repairing highways be made compulsory.

The problem of good roads in this country appears to be a most difficult one to solve. All things considered, country roads are but little better in Pennsylvania than they were twenty-five years ago. The labor system, still in vogue, of farmers working out road taxes has been an expensive failure for lack of intelligent road building and sufficient funds with which to build them. No money, no roads.

The idea of the Pennsylvania farmers, expressed through the great organization known as the State Grange, is that a special tax should be levied on all personal and corporate property, and the amount used with that now derived from the taxation of real estate for maintaining and building our roads. Not only that, but personal and corporate property should be taxed for road purposes equal with real estate, mill for mill.

Thus it will be seen how far two great States differ in their ideas of the solution of the good roads problem.

As far as any considerable results can be apprehended from present methods to obtain them, good roads in the United States, such as may be found in Continental Europe, are a Utopian dream. Good roads are not of merely local benefit, but are a necessity to the nation which depends upon them, among other things, for its proper expansion. But unavoidable inter-State obstacles interdict the logic of depending upon the States for the acquisition of good roads for the nation. But these and other obstacles will disappear when the United States Government assumes the responsibility of building and maintaining our public highways. In the meantime let us labor to assist any movement which contemplates the improvement of our roads.

The State Board of Veterinary Medical Examiners during 1901 examined twenty-one candidates for a license of the State, and granted twenty. All graduates must come before the Board. Notices are sent to every graduate from every school in the United States and Canada, where the same are registered from Pennsylvania. Twice each year a letter is sent to each of the sixty-eight prothonotaries in Pennsylvania. The letter reads as follows:

Dear Sir : In enclosing you a pamphlet copy of the several laws of this State regulating the practice of veterinary science in this Commonwealth, I desire to call your attention to several points upon which prothonotaries have erred and which they have had to appeal to the courts for orders to correct the same on their registers.

1. All graduates of veterinary colleges, as stipulated in Section 1 of the Act of April 11, 1889, were given the privilege of registering as such until the first Monday in September, 1895, as provided for in Section 9 of the

Act of May 16, 1895. After the first Monday in September, 1895, no registrations were admissible save on presentation of a license from this Board.

2. All non-graduates or those not possessing a diploma as provided for in Section 2 of the Act of April 11, 1889, were afforded six months within which they were to make such registration as an "existing practitioner." This period ended October 11, 1889, after which all such registrations were illegal until the passage of the amendment to the law of 1889, on April 29, 1891, when a second period of time was afforded non-graduates until January 1, 1892, after which time all registrations of non-graduates were illegal.

Will you kindly examine your registry and note that all registrations comply with these requirements? Further, that there is no other registration required beyond the one in the county of original registrations; or, in other words, one registration covers the entire State.

Again, that no further registrations can be made in this State save on presentation of a license of this Board with the State seal attached.

Trusting this will receive your careful attention and that you will report at once any irregularities on your registry that this Board may take the necessary steps to correct the same, I am,

Very truly yours,
SECRETARY.

During 1901 there were twenty-two alleged violations of the law investigated by the Board, with three additional ones for 1902 to date. Cases were successfully prosecuted in Schuylkill and Bedford counties. The secretary of the Board has made two trips to York and Columbia to institute proceedings. The case in York is on the list for the April term of court. The one in Columbia has been temporarily postponed in order to secure more evidence. The Board has had names stricken from the registry by order of the court in several counties where the same had been allowed to be improperly placed there by the prothonotaries. All records of the Board are carefully filed and retained in the office of the Secretary, and a detailed record is kept of every violation of the law. The profession is better protected in the State than it ever has been, and the law grows stronger each year.

Without the work of the Board all laws for the protection of the profession in this State instead of being enforced would be a dead letter. As a result, the profession would be in the same position that it occupied previous to the enactment of protective legislation. Thus all illegitimate registrations have been prevented by the influence of the Board upon the prothonotaries of the State, and scores of illegal practitioners have been driven from the field through correspondence. Protection of a profession like ours by laws properly enforced does more to dignify it in the eyes of the people than any other influence. Even the dignity derived from the professional education will not compare with it where the right to practice is not made exclusive.

Along educational lines the work of State Examiners' Boards is no less important. Under their influence college curriculums are altered and improved, courses of study lengthened, higher standing for graduation required, besides an efficient barrier is erected against the propagation of cheap schools.

In Pennsylvania the Board means protection to the interests and also gives elevation to the character of the profession. Therefore, the integrity of the Board should be zealously guarded, to the end that its personnel shall be the best adapted to the purpose.

In closing this subject, would it not be the proper mark of our esteem and appreciation for this Association to frame a resolution thanking Governor Stone for his action in reappointing against political influences an original, also a continuous member, now the worthy and competent Secretary of the Board, Dr. W. Horace Hoskins?

I would suggest for the consideration of this Association the feasibility of having two new committees. A standing committee of three members, to be known as the Committee of Membership. The duty of such a committee would be, first, to obtain the name of every worthy and eligible practising veterinarian in the State; second, to open correspondence with those not already members with a view of bringing them into this Association, and to render a report at each annual meeting showing the extent of the work and what has been accomplished during the year, and all the facts that may be accumulated as a result of the correspondence.

The other committee would be devoted to building up the idea of securing unity and harmony of the profession in Pennsylvania. This committee would not act in reference to members alone, but aim to reach every worthy veterinarian in the State, in order to secure his influence in favor of measures of importance to veterinarians as a professional body.

It is interesting to contemplate that the present year bids fair to excel the past one in the prosperity of the profession's interests. The work of the Bureau of Animal Industry for 1901 shows expansion in almost every direction. It shows that our markets in Europe in the future will depend upon the freedom of our herds from disease; that there has at no previous time been greater danger from imported contagion than now; the present number of quarantine stations are insufficient to afford adequate protection, owing to increased business; the number of cattle and sheep exported has increased over other years; we need no longer to import fine grades of cattle, but should introduce our fine breeding animals to foreign stockmen; prospects for export trade to foreign countries are excellent, but the supply of good stock is scarcely large enough to supply the home demand; the number of cities where meat-inspection is conducted has been increased by 13 per cent. during the year, and the number of carcasses inspected at the time of slaughter by 2,300,000; that there have been a large number of promotions of veterinarians in the Bureau of Animal Industry, and that there is an increased demand for additional inspectors. The report of the chief of the Bureau for 1901 should, on account of its interesting information, be read by every veterinarian.

We note that the last National Horseshow was the most successful ever held in this country; that the good horses have not been as scarce, and, all things considered, as high in the markets as now.

To indicate the status of veterinary education in this country, a few years ago nearly every veterinarian thought he knew everything. Now nobody knows anything. Is not this a potent indication of the progress of intelligence and education? The world owes you nothing. You owe it the influence of your best faculties. Pay the debt you owe and the present will reward you, while coming ages may not cease to bless you.

LEGISLATION.[1]

By Dr. James W. Sallade, V.S.,
SCHUYLKILL HAVEN, PA.

As one of the Committee on Legislation, I want to report briefly that, as all or most of you are aware, the Stiles bill opening the registration period was defeated by our last Legislature. The push that went to Harrisburg, combined with the individual effort of every member of this Association, had done its work so well that when I went to Harrisburg a second time, before the final vote on the bill, with a willingness to agree to a proposition to allow such as had neglected either by indifference or through ignorance to register in time, but could clearly demonstrate to the State Board their right to do so, had they availed themselves of the opportunity in time to register, the members of the Legislature, I found, had been so thoroughly aroused by their home veterinarians that nothing would suit them but a vote to defeat the entire measure. I was delighted to learn that the profession had so much influence, and make this statement so as to encourage you in concerted action upon legislation.

Many of you who were not placed as I was do not realize your strength.

It developed that the legislator was afraid of the influence of his home veterinarian.

I wish to draw attention to a piece of legislation that I believe would work much good to the profession. I merely touch upon the matter, leaving it open for suggestions, and thereby hope to draw out the full sense of this Association.

I refer to the registration of veterinarians. I would suggest that the next Legislature be asked to alter the law by passing an act requiring registration with the State Board every three or five years at a nominal fee, and repeal the act that requires registration with the prothonotary of each county.

In this manner you would support the hands of your Board. Keep your register clear and require those not associated with us in this Association, but who derive the same benefit from the several acts of the Assembly secured at the hands of the Association, to contribute their efforts to ours in the advancement of the profession.

REPORT OF THE COMMITTEE ON LEGISLATION.

Since our meeting, one year ago, we have closed a session of our Legislature in Pennsylvania, which I have no doubt you are familiar with. Before this body there were several bills that we were interested in for the welfare of our State Live stock Sanitary Board, and one bill that we were most especially and deeply concerned in. You will recall our adjournment one year ago under the necessity of going to our State capital, there to vigorously protest before a committee of the House against the passage of a Senate bill known as the Stiles bill, destined to reopen the registration of non-graduates. Those of you who were among the body that personally protested against the measure will remember the favorable assurances from the Public Health Committee that this bill would not be favorably recommended, and recall the fact that they returned the bill to the House with a favorable recommendation, all at the dictation of certain powerful influences who were using this as well as other pernicious measures for ulterior purposes. Realizing the unwarranted and unmerited strength back of this measure from that hour on until the defeat of this vicious proposition, we were compelled to wage daily and hourly warfare against this bill and the calling of every veterinarian from Lake Erie to the Delaware to personally use his influence at home and at Harrisburg against this proposed dangerous legislation, and nothing in the world saved us from its evil influences but the almost unanimous flood of protests by letter, by wire, phone, and personal visits filed with our legislators in the State capital. This bill was the greatest test of the association worth and professional union, and a triumphant trial of our combined strength. Our present laws have undoubtedly worked some hardships, but these are the great exceptions, and should not be counted against the great benefits derived by our people in better educated and trained veterinarians.

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[1] Presented at the Annual Meeting of the Pennsylvania State Veterinary Medical Association, March 4 and 5, 1902.

Two other measures of interest to us as veterinarians were passed at the last session of the State Legislature, one of which will greatly contribute to the efficiency of the work of the State Live-stock Sanitary Board. In compelling the proper disposal of the carcasses of animals dying with infectious and contagious diseases much will be saved in deterring the spread of these diseases as well as preventing their becoming fixed on farms and grazing grounds.

A second bill was passed whereby the owners of horses and cattle, as well as sheep, may be compensated for the loss of these animals from the dog-tax fund where they have died or been destroyed as suffering from "rabies." This law, it is thought, will contribute to the more thorough collection of dog taxes, the destroying of homeless dogs and wandering curs, and be a source of relief to those who suffer losses through this malady. It may require some modification, in that all such losses shall be certified to by the State Live-stock Sanitary Board to avoid possible unjust losses.

Respectfully submitted,
W. HORACE HOSKINS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

COMMITTEES, 1902-03.

Committee on Legislation: George Jobson, Chairman, Franklin; W. L. Kooker, 1116 Wallace St., Philadelphia; J. W. Sallade, Schuylkill Haven; W. H. Ridge, Trevose; H. S. Jackson, Sewickley; James C. McNeil, Department of Public Safety, Pittsburg; E. C. Porter, New Castle.

Committee on Intelligence and Education: H. B. Felton, Chairman, Olney; B. F. Bachman, 1 Alpha Terrace, Beatty St., Pittsburg; A. O. Cawley, Arch St., near Broadway, Milton; S. D. Larzelere, Jenkintown; Otto G. Noack, corner of Sixth and Cherry Sts., Reading; Charles Williams, 1321 Thompson St., Philadelphia; Edwin Hogg, 11 W. Canal St., Wilkesbarre.

Committee on Sanitary Science and Police: John E. Spindler, Chairman, 524 Duquesne Way, Pittsburg; J. R. Courtright, Clark's Green; E. E. Biddle, New Castle; C. W. Holley, Muncy; R. M. Phelan, Sharon; M. Moriarty, Gettysburg; M. J. Chrisman, Sugar Grove.

Committee on Animal Husbandry: S. J. J. Harger, Chairman, 205 N. Twentieth St., Philadelphia; J. L. Bradley, Mercersburg; W. H. Fry, Pine Grove Mills; J. B Irons, 144-46 W. Fourteenth St., Erie; F. F. Hoffman, Brookville; E. E. Tower, Montrose; John F. Vandergrift, Newtown.

Committee on Milk: J. C. Helmer, Chairman, Scranton; J. M. Carter, 1725 N. Fifteenth St., Philadelphia; C. C. McLean, Meadville; M. E. Conard, West Grove; Edward Seidel, Carlisle; J. C. Lacock, 38 N. Diamond St., Allegheny; E. T. Cornman, York.

Committee on Press: Benjamin Underhill, Chairman, Media; U. S. G. Bieber, Kutztown; W. G. Boyd, 26 S. Diamond St., Allegheny; C. Z. Laberge, Beaver Falls; J. Z. Tintzman, 335 E Girard Ave., Philadelphia; C. F. Keiter, Elizabethville; W. L. Phillip, Reading.

Committee on Meat-inspection: E. W. Newcomer, Chairman, Mt. Joy; George H. Dunn, 733 Arken Ave., Pittsburg; H. W. Turner, Lahaska; Henry Mayer, 4722 Liberty Ave., Pittsburg; C. T. Goentner, Bryn Mawr; Joseph Johnson, West Grove; G. K. Swank, East Mauch Chunk.

Committee on Army Legislation: W. Horace Hoskins, Chairman, 3452 Ludlow St, Philadelphia; James A. Waugh, 1 Robinson St., corner of Fifth Ave., Pittsburg; Leonard Pearson, Thirty-sixth and Spruce Sts., Philadelphia; Thomas B. Rayner, Highland Ave., Chestnut Hill, Philadelphia; J. H. Oyler, 19 S. Fourth St., Harrisburg.

DELEGATES.

American: S. J. Foelker, 119 S Seventh St, Allentown, Pa.; N. Rectenwald, 89 Washington Ave, Pittsburg, Pa.; J. C. Michener, Colmar, Pa.

New Jersey: C. J. Marshall, 2004 Pine St., Philadelphia, Pa.; Charles Williams, 1321 Thompson St., Philadelphia, Pa; W. S. Kooker, 1116 Wallace St., Philadelphia, Pa.

New York: James B. Rayner, 135 E. Gay St., West Chester, Pa.; W. B. E. Miller, 333 Market St., Camden, N. J.; James C. McNeil, Department of Public Safety, Pittsburg, Pa.

Keystone: Francis Bridge, 228 N. Fifty-third St., Philadelphia, Pa.; H. P. Eves, 504 W. Ninth St., Wilmington, Del.; Charles Lintz, 1003 Madison St., Chester, Pa.

Virginia: James Mahaffy, Jackson and Ninth Sts., Wilmington, Del.; A. N. Lushington, 1101 Fifth Ave, Lynchburg, Pa.; Joseph F. Ross, Frankford Ave. and Allen Sts., Frankford, Philadelphia, Pa.

Ohio: John Bryce, Fifth and French Sts., Erie, Pa.; David Waugh, 813 Forbes St., Pittsburg, Pa.; W. A. Meredith, Corry, Pa.

SCHUYLKILL VALLEY VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of this Association was held at the Park Hotel at Pottsville, June 25, 1902. Dr. O. G. Noack, the President, called the gathering to order at 11 A.M. The following members responded to roll-call: Drs. Longacre, Shenandoah; Wehr, Denver; Bieber, Kutztown; Noack, Reading; Huyett, Wernersville; McCarthy, Pottsville; Kauffman, Ashland, and Newhard, Ashland. A number of visitors were present. The President delivered his address, which was replete with interesting and instructive thoughts.

The election for the ensuing year resulted: President, Dr. O. G. Noack, Reading; Vice-President, Dr. G. A. Wehr, Denver; Recording Secretary, Dr. U. S. G. Bieber, Kutztown; Corresponding Secretary, Dr. W. G. Huyett, Wernersville; Treasurer, Dr. F. McCarthy, Pottsville. Trustees, Dr. Fred. Schneider, Philadelphia; Dr. I. C. Newhard, Ashland; Dr. D. R. Kohler, Boyertown. Committee on Intelligence and Education, Dr. W. S. Longacre, Mantz; Dr. A. R. Potteiger, Selinsgrove; Dr. Eli Snyder, Orwigsburg; Dr. H. F. Kauffman, Ashland. A motion was then made and carried to adjourn for luncheon, which was done. At 1 P.M. the meeting was again called to order by the President, when a number of essays and papers were presented and ably discussed by all the members present. One paper of especial interest was "The Value of Antitoxins," by Dr. F. Schneider, who was unavoidably absent. The subject was discussed and some interesting experiences were related.

Half an hour was allotted to the payment of dues, after which the subject of collections from those in arrears was referred to, and the Secretary was instructed to correspond with those in arrears and report at the semi-annual meeting. The Secretary and Treasurer's reports were audited, showing the Association to be in a flourishing condition.

Letters regretting absence from the meeting were read from Drs. Pearson and Kohler, of Philadelphia and Boyertown, respectively.

A vote of thanks was tendered Dr. Leonard Pearson, State Veterinarian, for his kindness in sending the valuable circulars on "The Intercommunicability of Human and Bovine Tuberculosis," by Dr. M. P. Ravenel, to the President, who distributed one to each member. The Secretary was instructed to mail a copy to each absent member and to other veterinarians. The subject of registration was again brought up, and much confidence was expressed that it will become a law in the near future. The gathering adjourned, to meet at the call of the Secretary. The semi-annual meeting will be held in the Board of Trade Building, at Reading, in December.

ALUMNI SOCIETY OF THE VETERINARY DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

THE regular annual meeting of the Alumni Society of the Veterinary Department of the University of Pennsylvania was held in Houston Hall, June 18, 1902, with the following alumni present:

C. J. Marshall, 1894; S. J. J. Harger, 1897; Casper Garrett, 1888; A. F. Schreiber, 1888; Charles Lintz, 1887; W. R. Andrews, 1900; G. W. Homer, 1900; Charles E. Magill, 1893; J. Alvin James, 1893; H. D. Martien, 1896; Frederick Stehle, 1901; Edgar W. Powell, 1900; T. S. Carlisle, 1901; J. D. Houldsworth, 1902; F. H. Bradley, 1902; Fred. Weitzel, 1902; A. A. Harmon, 1902; W. J. Storm, 1897; H. Feigenbaum, 1902; H. Baker, 1902; S. C. Babson, 1902; Oscar F. Stearns, 1902; John W. Adams, 1892; Leonard Pearson, 1890; S. J. Cole, 1902; Samuel Burrows, 1902; E. M. Ranck, 1897; W. Horace Hoskins, D.V.S., American Veterinary College, New York, and Thomas B. Rayner, Philadelphia College of Veterinary Surgeons.

The minutes of the previous meeting were read and approved, after which we had reports of various officers and committees.

The Library Committee, under chairmanship of Dr. Leonard Pearson, brought to our attention the necessity of libraries in veterinary colleges, and through his efforts a committee was formed to see if the library of the late Dr. Rush Shippen Huidekoper could not be bought. It was the intention of this committee to have a number of contributions made, so that this library could be procured for the veterinary department of the University of Pennsylvania.

Dr. Rayner was among those who were approached on this subject, and out of his generous nature he willingly assumed the responsibility of purchasing the library and presented it to the veterinary department. The only restriction Dr. Rayner has placed on this purchase is that it shall be available for all veterinarians throughout the country, and we are glad to say that since it has been placed in the library building of the University of Pennsylvania it will be accessible at all times, as this rule prevails there.

This library is presented as a memoir to Dr. Rayner's late son, Moncure R. Rayner, who died while pursuing his course in our department.

Dr. Adams, of the same committee, in making a report under the same heading, said: "It is the intention, as soon as we have a fireproof building, to have those books removed to the veterinary department proper." He expressed his gratitude in a very pleasing manner to Dr. Rayner, and said that he hoped we would show our appreciation by our assuming the task of adding to this munificent gift.

Dr. Harger, in making a few remarks in reporting on the same committee, said "that Dr. Rayner wishes to improve the status of the profession from his extreme love for the same." Dr. Harger, who knew his son so very well, who took a great interest in his studies, referred to the fact that had he not been taken from us he would probably be one of the shining alumni of our department now.

[The further reference to the report of this gift will be found under the head of resolutions.]

This report was accepted as above and ordered to be spread upon the minutes.

The report of the other Library Committee was not available. This committee, having been recently appointed, did not have time to prepare a report.

The Secretary and Treasurer reported the financial condition of the Society, which shows it to be in a prosperous state. A number of the graduating class showed their interest in the Association by enrolling their names on the membership list.

Following this was the annual election of officers, which resulted as follows: President, A. F. Schreiber; Secretary and Treasurer, E. M. Ranck; Historian, S. J. J. Harger; Executive Committee, Charles Williams, S. J. J. Harger, and Leonard Pearson.

Under the head of new business, resolutions were adopted as follows:

Whereas, It has pleased Divine Providence to remove from our midst our late fellow-alumnus and esteemed friend and colleague, Dr. Frank T. Shannon, whose integrity, noble impulses, and professional ability were appreciated by us all, and whose endeavors were always exerted for the welfare and prosperity of the veterinary profession, be it, therefore, *Resolved*, That this Association sincerely regrets his loss so early in his useful career, and extends to his parents its sympathy and condolence in their great loss; and be it further

Resolved, That these resolutions be spread upon the records of this Association, and a copy thereof be transmitted to the parents of our deceased friend and to each of the veterinary journals in the United States.

Whereas, In response to the immutable laws of Almighty God, there has been called from the strife and turmoil of earthly cares an alumnus of this Society, Dr. James Beatty, again we are reminded of the uncertainty of life and the certainty of death. We mourn his early demise, not more in response to a sympathetic chord of sadness in our hearts than because we realize the blighting of a bright prospect of future development into strong manhood, a useful member of society, and a benefit to his profession. His integrity of purpose, purity of character, and loyalty to his many friends endeared him to this Society and made him an associate worthy of emulation. Endowed with a cheerful disposition and a warm, sympathetic nature, he wound about all our hearts the tendrils of his love and affection. It may be truly said of him that he was a wise and valued counsellor in prosperity and a sincere friend in adversity. The members of this Society, and those to whom his qualifications were best known and appreciated, can only bathe his memory in their tears and lay upon his resting-place the wreath of their affection; therefore, be it

Resolved, That by the death of Dr. Beatty this Society has sustained a loss of one of its brightest, most useful, and beloved members, and the University of Pennsylvania a warm supporter and one of its representative men; that the ranks of the profession for the practice of which he had prepared himself will feel the loss of one worthy of the highest honors possible of attainment, and that society at large is deprived of the influence he might have exerted and the good he might have done.

Resolved, That a copy of these resolutions be spread upon the records of this Society and that they be published in the *Alumni Register*.

Whereas, Through the generosity of Dr. Thomas B. Rayner, of Chestnut Hill, the large and valuable library of the late Dr. Rush Shippen Huidekoper has been purchased and presented to the Veterinary Department of the University of Pennsylvania, as a perpetual memorial to his son, Moncure Robinson Rayner, Class of '96;

Resolved, That we, the Alumni of the Veterinary Department of the University, are profoundly grateful for this munificent gift, and do pledge ourselves to do all in our power to enlarge and render efficient the Rayner Library; be it, therefore,

Resolved, That Dr. Thomas B. Rayner be elected an Honorary Member of the Alumni Society of the Veterinary Department of the University of Pennsylvania; be it further

Resolved, That an appropriate tablet, inscribed with the name of the donor and his magnificent gift, be placed in the library room of the new Veterinary Building.

A plan was proposed for the perusal of the members present to establish a fund for the library by holding shares of stock in a building association. This was thoroughly discussed by members present who are members of various building associations, and also by Dr. Hoskins, who has been a director of one for a number of years.

A motion to have the Library Committee given power of attorney to formulate plans to start such a fund, to work in connection with the Executive Committee, was unanimously adopted.

W. Horace Hoskins, D V.S, Alexander Glass, V.S., and John Marshall, M.D., were elected Honorary Members.

We next listened to an excellent address from Dr. Leonard Pearson for the proposed plans for the new buildings of the veterinary department, which we have every reason to expect to be completed in a very short time.

The following committees were appointed by the incoming President for the ensuing year: Library Committee, Drs. Adams, Pearson, and Harger; Special Library Committee, Drs. Felton, Repp, and Mohler.

After a general smoke, this being a smoker instead of a banquet, and listening to various remarks from the alumni present, the Association adjourned.

E. M. RANCK,
Secretary-Treasurer.

Secretary Ranck, of the Pennsylvania State Veterinary Medical Association, is out with a preliminary notice of the semi-annual State meeting on September 16, 1902. A number of good papers are assured for the programme.

THE Missouri Veterinary Medical Association will hold their eleventh annual meeting in St. Louis, August 18th and 19th. The programme embraces a number of very interesting subjects, including a surgical and dental clinic by the members resident of St. Louis, and an exhibition and demonstration of a modern rocker operating-table. The reception committee, Dr. C. W. Crowley, chairman, has associated with him the most active and prominent veterinarians in St. Louis, which assures a cordial reception and a pleasant entertainment.

KANSAS CITY VETERINARY COLLEGE. The twelfth annual announcement for the college year 1902-03 has been received from this college. The following changes are noted: In faculty, Warren J. Fretz, D.V.S., Physical Diagnosis and Examination for Soundness, in place of Henry C. Babcock, V.S., M.D.; Arthur Trickett, D.V.S., Comparative Anatomy, in place of Charles M. Davies, M.D., V.S. Added: Silas L. Brooking, M.D., V.S., on Hygiene. Dropped: Charles J. Sihler, D.V.S., on Milk and Dairy Inspection; Robert Jay, D.V.M., on Diagnosis and Treatment of Lameness; W. H. Tuck, Demonstrator of Bacteriology. Added as text books: *Materia Medica and Therapeutics*, Winslow; *Lameness*, Wyman; as books of reference: *Pathology*, Ziegler; *Feeds and Feeding*, Armsby.

NOTES.

ALL HAIL THE MICROBE.

Go draw the curtains, sister, and stop up all the chinks,
For microbes and bacilli are kicking up high jinks;
Go sterilize the water and disinfect the cook—
The germ is grimly stalking like some pursuing spook!

And while you're doing these things,
You'd better do 'em twice—
And when you've got 'em finished,
Go down and boil the ice!

Be careful of the mutton (Oh, guard ye well the meat!)
It's full of varied microbes we would not care to eat!
And trace the antecedents of that seductive stew—
We know not how much danger is lurking in the brew!

Go, vaccinate the oatmeal
And sulphurize the rice;
And once again, dear sister,
DON'T fail to BOIL the ICE!

Dr Rhoads, of the Springfield track, could not see why the votes on dates for racing were not cast according to his views. Well, he talked too much and said less.—*Quaker Quality.*

State Veterinary Surgeon Knowles, of Montana, takes a keen interest in the National Live Stock Association, and his urging maintenance of the ninety-day quarantine by our government on all importations of stock for the protection of our great cattle interests met with success and gained for him the hearty approval of the owners of Montana's herds.

The Cow-Pea is the title of the latest publication issued by the Experiment Farm of the North Carolina State Horticultural Society at Southern Pines, N. C. This book is plainly written, and intelligently discusses the value and uses of this important crop, the cow-pea. Our readers can secure a copy free by writing to the Superintendent of the Experiment Farm, Southern Pines, N. C.

Civil service examinations will be held in the usual cities on October 7th for meat-inspectors for the meat-inspection service of the Bureau of Animal Industry.

The horse is doomed. Mr. Edison is confident he will have every one of the species out of the business as soon as he gets his battery for motor vehicles in the market. This untimely end of the horse has long been prophesied, but he is still as much in demand to-day as at any time since he was trained to the offices of men. I think it will be many and many a day before we witness the passing of the equine. There are, and doubtless always will be, a large number of people who have a preference for the horse over electric or gasoline motors, and it is not wise to predict that man's best friend is shortly to be cast aside. Besides, why put away the horse? There is room enough and plenty of work for him to do. Man's ingratitude would surely not be so base as to lead him to turn his back upon so faithful a friend.—*Quaker Quality.*

Hydrophobia Scares. There is no special hydrophobia season. In the hot months dogs suffer from intense heat and are liable to heat stroke, especially if they be unable to obtain water. No doubt the so-called rabid dogs are aften the victims of other disorders; but the germs of rabies are no more active and general in summer than in winter. Although this fact has been presented to the public repeatedly, every dog which is plainly not in good health in July and August is pursued to its death by police and public.

There are specialists in diseases of the nervous system who are disposed to doubt whether there is such a disease as hydrophobia, because of the number of reported cases which they have found to be due to some other malady or to fright. Anyhow, it may be said with emphasis that cases of true rabies in dogs and hydrophobia in man are extremely rare, and that a considerable majority of alleged hydrophobia deaths might be traced to panic. In the instances where the patients actually bark, crawl on all fours, and imitate the dog, it is safe to say there is no hydrophobia. In their fear of the malady such patients exhibit all the symptoms which they believe are displayed by the hydrophobia patient. The latter suffers from a nervous constriction of the throat which is increased by any attempt to swallow. This is the source of the alleged fear of water and of the name of the disease. This constriction of the larynx produces the noise which is popularly likened to the barking and growling of a dog. It also causes a struggle for breath, which is assumed to be an effort to bite the persons in attendance.

It is almost certain that the popular fallacies about mad dogs and hydrophobia have killed more persons than has hydrophobia itself. Fairly sensible persons when bitten by a cross dog often become panic stricken and die in great agony after exhibiting many of the alleged symptoms of hydrophobia, although the dog in each case may have been free of rabies. A typical instance was that of a Chicago woman whose malady was diagnosed by two doctors as hydrophobia. After her death the dog which bit her was hunted up and was found to be entirely well. Intelligent people in every community should stoutly combat every mad dog scare. Instead of having an alleged mad dog shot, they should shut him up until it shall be determined whether he has rabies. This would often secure persons who may have been bitten against death from fright. —*Philadelphia Record,* July 3, 1902.

PERSONALS.

Dr. W. C. Benner, of Doylestown, Pa., was a visitor to the JOURNAL office in June.

The home of Dr. J. Payne Lowe, of Passaic, N. J., was recently blessed by the arrival of a son and prospective successor of his father.

Dr. S. L. Blount, of Temple, Texas, reports a much better state of affairs veterinary in his bailiwick. Fewer non-graduates than ever before. He reports the corn and cotton crop in great danger from drought.

Dr. James Mecray, of Maple Shade, N. J., met with the loss of his father in June. His father was a well-known practitioner for many years, and a graduate of the Medical Department of the University of Pennsylvania.

Dr. C. M. McFarland, of Billings, Montana, has entered the meat-inspection service of the Bureau of Animal Industry, and is now stationed at South St. Joseph, Missouri.

Dr. A. W. Ormiston, of Germantown, Philadelphia, is much interested in Free Masonry and a student of its mysteries and teachings through the school maintained at Philadelphia Masonic Temple.

Dr. F. Thatcher, located at El Paso, Texas, fills the rôle of Veterinary Inspector for the Mexican Government.

Dr. Geo. W. Kelm, of Milwaukee, Wis., is President of the Wolverine Mutual Live Stock Insurance Company, of Detroit, Michigan.

Dr. W. H. Yingst, formerly of Harrisburg, Pa., has received an appointment in the Bureau of Animal Industry, and is located at National Stock Yards, St. Clair Co., Illinois.

T. J. Ray, veterinarian, of Richfield, Minn., was chosen a lay juryman in one of Minneapolis' important trials involving the integrity of their city government.

Dr. R. G. Matthews, formerly of North Portal, has again located at Regina, Assa.

Dr. Elmer D. Nash, of Helena, Montana, is now Deputy State Veterinarian of that State, vice Dr. S. McClure, who has entered upon private practice.

Dr. J. S. Grant, of Portland, Mich., has removed to Mason City, Iowa, where he has erected a veterinary hospital and entered upon private practice.

Dr. Cecil French, of Washington, D. C., will spend the month of August at Bowery Beach on the coast of Maine.

Dr. McFarland, of Helena, Montana, a non-graduate practitioner, has been practising in that State more than forty years.

The Hollingsworth Veterinary Hospital of Utica, N. Y., is conducted by Dr. W. G. Hollingsworth as Medical Director, and Dr. W. A. Young as House Surgeon.

Dr. John J. Maher, of Philadelphia, Pa., gave a unique dinner of seventeen covers in the centre of his commodious veterinary hospital in June, in honor of the graduation of his student, Dr. John H. Zollinger, at the Veterinary Department of the University of Pennsylvania.

Dr. J. S. Pollard, of Providence, R. I., is Veterinarian to the State Board of Agriculture of the "Little Rhody" commonwealth.

Dr. J. M. Brodie, of Pontiac, Michigan, is a great admirer of the trotting bred horse.

Dr. William Dougherty, of Baltimore, Md., sailed from New York for Europe on the "Minnehaha" on May 10th. Dr. W. H. Rose, Prof. James L. Robertson, and Dr. Wm. Herbert Lowe were on the pier to see their old friend off and wish him bon voyage.

Dr. H. C. Shoemaker has formed a partnership with Dr. Joseph C. Fly, Philadelphia, Pa.

Dr. W. B. E. Miller, of Camden, N. J., will be associated with the extensive practice of Drs. Marshall and Fuller, of Philadelphia, in the future.

Dr. A. S. Shealy, who has been assistant to Dr. G. E. Nesom, of Clemson College, S. C., has obtained a leave of absence for one year and will return to the Veterinary Department of the Iowa State College to complete his course.

Dr. W. H. Dalrymple, of Baton Rouge, La., has just had conferred upon him an honorary membership in the Louisiana State Medical Association, in recognition of the distinguished services he has rendered in sanitary control work of animal diseases for the "Pelican State."

Dr. Geo. A. Waterman, Veterinarian of the Michigan Agricultural College, addressed the Michigan State Veterinary Medical Association on " The Relation of the Agricultural College to Veterinary Science.

Dr. F. J. Pagoda, an attache of the U. S. troop, is en route to Manila, P. I., from his former station at Fort Du Chesne, Utah.

Dr. H. S. Borneman, of Norristown, Pa., was a JOURNAL office visitor in June.

Dr. A. T. Sellers, of Camden, N. J., has been selected to fill the position of City Veterinarian. This place was recently created by an ordinance of councils.

WANTED

An Assistant Veterinarian who is not afraid of work and can come well recommended. Must be competent, sober, and industrious. Address,

POSITION, Veterinary Journal Office.

THE JOURNAL

OF

COMPARATIVE MEDICINE AND

VETERINARY ARCHIVES.

VOL. XXIII. *AUGUST, 1902.* No. 8.

INVESTIGATION OF THE PATHOGENESIS OF ROARING (HEMIPLEGIA LARYNGIS).

BY PROFESSOR M. H. J. P. THOMASSEN,
UTRECHT, NETHERLANDS.

Translated from Monatshefte für Praktische Thierheilkunde for the JOURNAL.

BY L. VAN ES, M.D., V.S.,
MOBILE, ALABAMA.

WITH reference to the hereditary character of laryngeal roaring, I believed that an investigation of the central nervous system, especially of certain centres of the medulla oblongata, should not be neglected; also the spinal accessory nerve of a few horses was the object of a microscopic examination because it appeared to me very probable that it contributes, as a whole or as a part, to the formation of the recurrent nerve.

I will return to this at another place and at another time.

In the meantime it soon turned out that the changes were limited to the periphery and almost exclusively to the recurrent nerve.

First of all I had the opportunity to conduct an extensive investigation in horses which suffered from spontaneous roaring, and later in those in whom the ailment had been brought about experimentally in various ways. With the exception of the cases in which the whole recurrent nerve was examined microscopically, the material used from other roarers was the peripheral part of the nerves, which were still attached to the right and left of the larynxes forwarded to me.

The results obtained were in the most of the cases tolerably the same, so that it does not seem to me as risking too much in reaching conclusions as to the nature and form of the disease based upon my observation at this time.

Even if the question of etiology is not fully solved, the following facts in that line will bring us a great deal nearer to our purpose.

CASE I.—A brown mare, native breed, about fifteen years old, was purchased for experimental purposes. According to the story of the owner the horse was affected with roaring only a few years.

On the arrival of the horse, and also on the day following, roaring was present in such a degree, even when standing quietly in the stable, that I found it necessary to perform tracheotomy. Judging by the roaring I suspected that its cause in the case under consideration was not to be looked for in the form of a hemiplegia, but of a tumor or a deformity of the larynx.

On a closer examination it soon became clear that the intense sound of stenosis was entirely due to a paralysis of the left half of the larynx.

Laryngotomy performed on the animal revealed the left arytenoid cartilage, immovably in the cadaver position. After the patient had breathed through the tracheotomy tube for a few days, a cork was inserted in the opening, and it soon became evident that the animal not only had ceased to roar when at rest, but that roaring could be detected only very slightly after a preceding movement in trot.

The arytenoid cartilage probably had assumed a more lateral position during the period of rest to which the larynx was subjected after the tracheotomy.

Or was a contraction of the right adductors, in consequence of a vagus lesion on the left side, to be assumed to be the cause of the severe roaring, as has been observed by French authors in man?

As an experiment both the muscular branches of the accessory nerve were cut through, by which the sternomaxillaris was placed out of function on both sides. It has recently been asserted that this has not the least influence on the degree of roaring.

There were no changes to be observed in the frequency of the respiration or the pulse in the horse, which was used a few times for clinical instruction. The horse was killed, and first of all the left recurrent nerve and vagus were critically examined throughout their whole course.

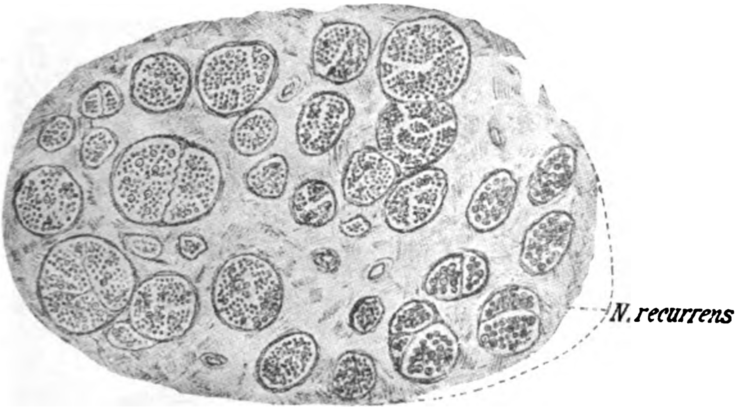
Both nerves were free everywhere; nowhere a trace of adhesions with the surroundings or of any compression by enlarged lymph nodes. They were removed in toto and hardened in

Müller's fluid. The left spinal accessory nerve was treated in a similar manner. The medulla oblongata was first hardened in formalin, and after that in alcohol.

In the excised larynx the following changes were noticed:

The upper edge of the left arytenoid cartilage stood lower and more toward the middle than that of the right side. Most muscles of the left half of the larynx were markedly atrophic. The posticus muscle was degenerated in such a high degree that there only remained a few muscle bundles of the upper third; the lower two-thirds formed nothing but a fibrous plate. The left half of the transversus had entirely wasted. Of the crico-arytenoideus lateralis not a sign was to be found. The least atrophied was the thyro-arytenoideus superior, but the muscle bundles, still intact, had an extremely pale color. The crico-thyroideus was not changed, and its volume and its color were similar to the muscle on the right.

FIG. 1.



Vagus and recurrent nerves in the most anterior portion of the chest. (United in one sheath.)

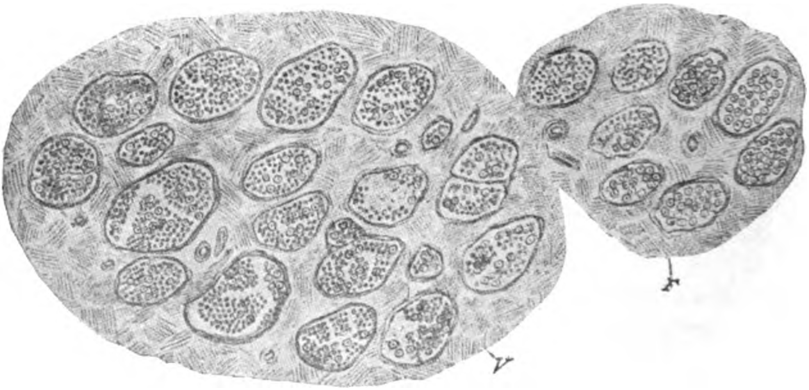
The muscles on the right half were red and of a normal volume. The medulla oblongata was examined microscopically first. With reference to the heredity of the disease, the possibility of lesions of the central nervous system had to be reckoned with. After treating the sections according to Nissl's method, the vagus and accessory centres, and more particularly the nucleus ambiguus, received attention in the first place. All ganglia cells by which those centres are formed turned out to be perfectly normal.

Neither did sections of the spinal accessory nerve, stained after Weigert's method, show the least change.

Now came the turn to the vagus and recurrent nerves, which had been hardened in Müller's fluid. The greater part of both nerves was sectioned, and the sections stained after the method of Weigert-Pal. The cuts (Figs. 1 to 5) give a true picture of the preparations. Figs. 1 and 2 were taken with obj. A and ocular I. Figs. 3, 4 and 5 with obj. A and ocular IV. (Zeiss). The illustrations show plainly the intact nerve fibres to be of different size in the normal as well as in the atrophic bundles.

The sections, which were taken from the lower cervical and foremost thoracic region of the vagus at a place where this nerve is still united with the recurrent, showed that the vagus was still quite normal. The recurrent, which in Fig. 1 is situated below, at the right, with its six bundles, which are almost exclusively formed by thick nerve fibres, can be easily distinguished from the vagus. In preparations taken from the vagus immediately after the giving off of the recurrent in the thoracic cavity, and treated by Pal's method, one observes a couple of bundles, which for a part are considerably degenerated. (Fig. 2.)

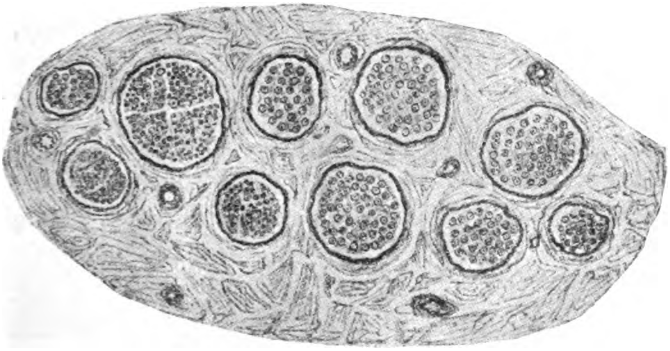
FIG. 2.



Vagus and recurrent nerves, partly separated.

In its entire thoracic portion the recurrent does not show the least change, as is evident from Fig. 2 and especially from Fig. 3. The latter section (Fig. 3) shows first of all six bundles to the right, which consist of large nerve fibres, composed of perfectly normal myeline sheaths and normal axis cylinders. The four bundles situated to the left, and almost entirely composed of thin fibres, show themselves in the main to be normal. The section of the recurrent at the upper part of the neck (Fig. 4), however, presents a different picture. Parts of the nerve fibres are quite atrophic, and in their place connective tissue is found. In the vicinity of the larynx, as is shown in Fig. 5, almost none of the fibres have remained. In some bundles there are still two or three left. The bundles composed of fine fibres have suffered the most. The question now is whether we have to deal with a simple secondary process of degeneration or with the consequences of a neuritis?

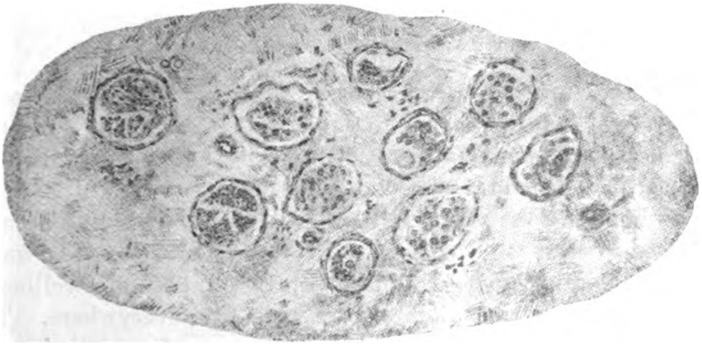
FIG. 3.



Recurrent nerve in the lower part of the neck.

My opinion is that the first view should be accepted, because the recurrent shows, some months after its resection, in all its peripheral parts, the same changes as are to be observed in the worst cases of spontaneous roaring.

FIG. 4.

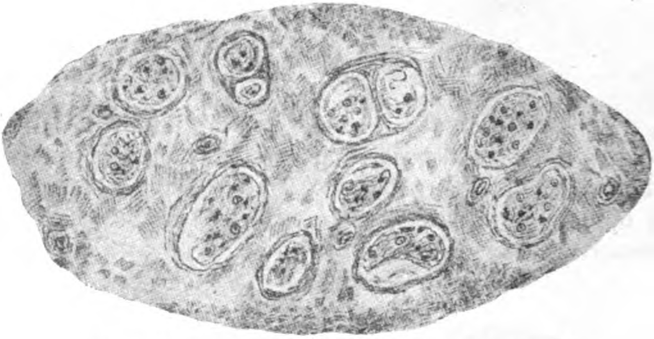


Recurrent nerve in the upper part of the neck, partly degenerated.

In Fig. 3 one sees to the right six bundles composed exclusively of large fibres, and to the left four bundles, which for the greater part are made up of smaller, probably sensitory, nerve fibres. This difference in the structure, according to my views, points to a different origin of the two halves, an anatomical problem into which I will penetrate no further at this place.

Case II.—A five-year-old gelding suffered for several months from roaring. The trouble followed a case of benign strangles. The horse roared in such a degree that the owner decided to have it operated on. In January I performed arytenoidectomy, after which the healing process seemed to run a normal course, so that the horse could be discharged in about three weeks. After six weeks no roaring could be detected during light work, so that for the time being a complete cure had been obtained. In the month of April following, difficulty in swallowing suddenly developed in the horse to the extent that feed and water partly regurgitated and partly found its way into the trachea, so that after tracheotomy a portion ran out of the tube. As was to be expected, foreign body pneumonia developed. The horse was killed on May 23d, and I had the opportunity to perform a careful autopsy. In the first place the vagus and the recurrent of the left side were examined in their whole course. Nowhere was there to be found anything pointing toward abnormal pressure, and no swelling of lymph nodes existed. Both nerves were free everywhere. The recurrent was removed entirely and the vagus as far as the jugular foramen, and immediately placed in Müller's fluid. Alongside the epiglottis, in the upper folds of the laryngeal mucosa, and also in the nasal cavity, food particles were found; in the lungs necrotic foci, as was to be expected. The removed larynx showed no traces of the extirpation of the arytenoid cartilage. The mucosa was

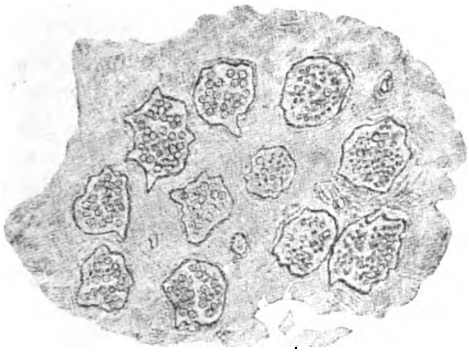
Fig. 5.



Recurrent nerve near the larynx, extensively degenerated.

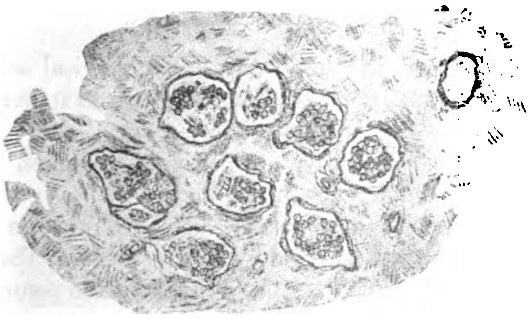
quite even, so that there was almost nothing to be seen of the scar. The opening of the larynx was nearly normal; no retraction of the cicatrix had taken place. There was further to be noticed considerable atrophy on the left side. The most atrophic were the posticus and transversus muscles, so that fibrous tissue had taken the place of muscle fibres. The lateralis muscle also was quite atrophic. The superior and inferior muscles had retained their normal volume almost entirely, but had a conspicuously pale color. They were not examined microscopically.

FIG. 6.



Recurrent nerve 65 cm. from the larynx.

FIG. 7.



Recurrent nerve 40 cm. from the larynx.

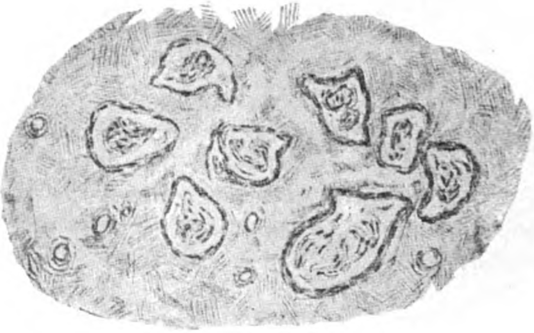
Hardened in the proper manner the sections were stained after the Weigert-Pal method. The following changes were now to be observed:

The recurrent nerve was perfectly normal throughout the whole thoracic cavity, and as far as half of the neck, as can be seen from

Fig. 6 (a cross-section of the nerve at a distance of 60 to 65 cm. from the larynx; here, too, one sees six bundles entirely made up of coarse fibres, and five bundles which are largely composed of finer, probably sensitory, fibres). At a distance of 40 to 45 cm. from the larynx a few fibres are absent, and a beginning degeneration can be plainly observed. A few bundles which probably consisted of fine fibres are entirely degenerated.

In the part situated 5 cm. from the larynx only a few fibres are found, sometimes two or three in one bundle, while just before the place where the twig for the posticus muscle is given off nothing is to be seen of the nerve elements. Fig. 8 shows in the nerve bundles nothing but connective tissue; nerve fibres are entirely absent. Considering the difficulty in deglutition, I hoped to find considerable changes in the vagus. The cervical and thoracic portion proved to be normal on microscopic examination, however.

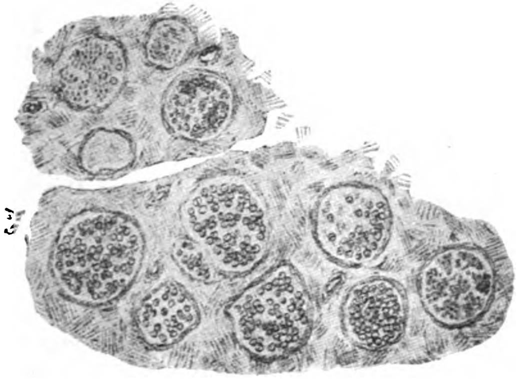
FIG. 8.



Recurrent nerve near the larynx.

CASE III.—A large, brown, fifteen-year-old mare, bought by me from a drayman, for whom she had to do heavy work. For two years she breathed through a tracheotomy tube, on account of the high degree of roaring, caused by laryngoplegia. The horse was killed by stabbing the heart. The vagus and the recurrent of the left side were followed up minutely, but throughout their whole course not a sign of compression or stretching was found. Especially that part of the recurrent which is situated behind the aorta, and between this artery and the trachea, was as normal in circumference as in front and behind the place mentioned. The left vagus and recurrent, along with the medulla oblongata, were removed and placed in a formalin solution. From the right nerves only a small portion from the middle of the neck was removed. The peripheral nerves were then hardened in Müller's fluid, the medulla in alcohol.

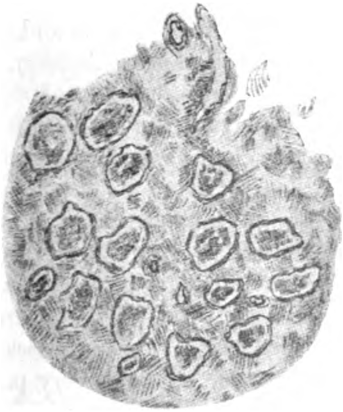
FIG. 9.



Recurrent nerve from the lower part of the neck.

On the left side of the larynx I observed considerable hemi-atrophy. Seen from above, the left arytenoid cartilage was placed lower and more toward the median line than the right one. Of the posticus muscle there remained a few very pale bundles. The

FIG. 10.



Recurrent nerve near the larynx.

left half of the transversus muscle was reduced to a tendinous plate. Of the three muscles remaining the inferior one was the least atrophic. The microscopic examination of both nerves, treated by the Weigert-Pal method, led to the following results:

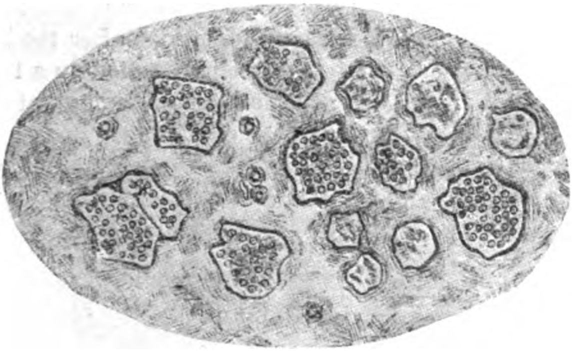
The vagus nerve was normal throughout. In regard tc recurrent, Fig. 9 shows that throughout the whole thorax it also normal for the greater part. Here is shown a section of nerve at the lower cervical portion, in which a couple of bu show the beginning and one bundle a total degeneration. latter was probably composed of fine nerve fibres. In the vic of the larynx all nerve elements have disappeared. (Fig. 10.) connective-tissue proliferation (also of the endoneurium) is marked, and by which an apparent increase in numbers of the bundles has taken place (by division). In the medulla oblon treated by Nissl's method, all ganglia cells of the centres b mentioned were perfectly normal.

CASE IV.—A black brood mare of native breed, about years old, had for a long time (?) roared in a high degree. was purchased as an experiment animal for my investigat During the few days that the animal was kept under observat discovered that sometimes when moving about quietly in pasture, or even in the stable, it roared to such an extent that distance a loud sound could be heard. When neighing, apl became apparent. Other symptoms of disease were not obse in the patient; pulse and respiration were always normal.

The horse was killed by severing the carotid, and the aut held immediately after death. As I had convinced myself, du the life of the subject, that as a cause of the roaring a left h plegia was to be considered, the left vagus and recurrent were of all made the object of a minute examination. In this case not a trace could be found of pressure or constriction of the ne they were free throughout and did not adhere to any adj organ. Nowhere in the thorax could enlargement of the ly nodes be observed. The muscles of the larynx were atroph the left side, most of all the lateralis and inferior; then superior, of which a small strip of pale muscle bundles remained. Although the posticus and transversus did not their normal volume, they were by no means atrophic to extent that is usually the case in chronic cases of roaring. right posticus muscle, however, was also very poorly develope which, perhaps, the high degree of roaring can be expla although the lesion of the left abductor apparently had not advanced so far. This is a case in which the most perip portion of the recurrent nerve was most involved, by which caused an idiopathic paralysis of the adductors, giving ris aphonia before disturbances of respiration could be obser

By degrees the defect had advanced in a central direction, so that the posticus muscle finally also became involved in the paralysis. The microscopic examination of the nerves gave the following results:

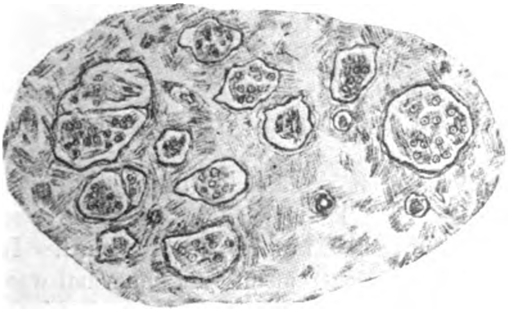
FIG. 11.



Recurrent nerve from the lower part of the neck.

The vagus nerve was perfectly normal. The bundles of the recurrent, composed of coarse fibres, were normal even in the neck. (Fig. 11.) Of the remainder, composed of fine fibres, some consisted exclusively of connective tissue; others were partly degenerated. In the vicinity of the larynx all bundles were considerably changed. (Fig. 12.) Still, there were found more well-preserved nerve fibres at this place than is usually the case in chronic roaring. This corresponds with the unusually little advanced atrophy, which concerns mainly the posticus and the transversus. The especially poor development of the upper half of the right posticus muscle explains the marked stridor, which sometimes could be

FIG. 12.



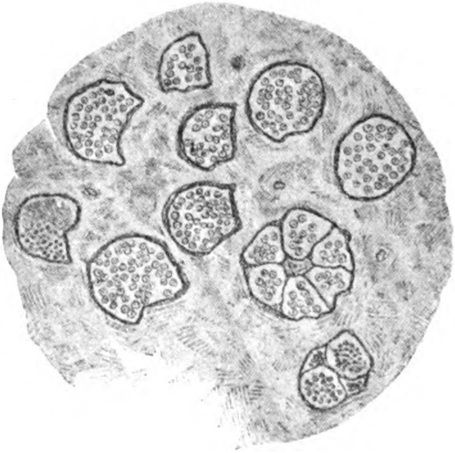
Recurrent nerve near the larynx.

observed when the animal was at rest or slowly moving abo
the pasture.

CASE V.—A black, thirteen-year-old mare, had a few mo
before become a roarer to such an extent that about six weel
advance of the purchase it became necessary to perform tr
otomy. As the tracheotomy tube had been removed at the s
could observe only a slight degree of stridor after the horse
travelled a distance of about one hundred metres in a trot.
mare suffered also from incontinentia urinæ on account of a
affection of the neck of the bladder.

Other signs of paralysis besides the larynx were not obser
The horse was kept under observation for fourteen days, a

FIG. 13.



Recurrent nerve near the middle of the neck.

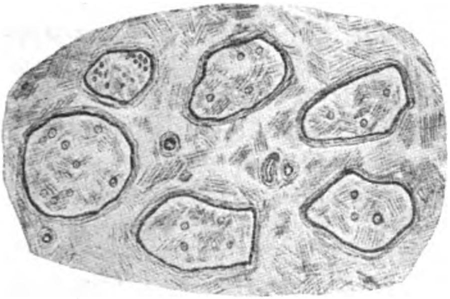
soon became evident that a left-sided hemiplegia laryngis wa
cause of the dyspnœa. The animal was killed by puncturing
heart, and the autopsy held immedately afterward. In the co
of the left vagus and recurrent nothing abnormal was detecte
which the origin of a paralysis through mechanical influences c
be explained. Both nerves of the left side were hardened
whole; of the right only a small portion.

The larynx was removed and carefully prepared, and reve
the following changes :

All the muscles of the left half of the larynx, of course, witl
exception of the crico-thyroideus, were undoubtedly atrophic,
only in a slight degree. This could be seen most plainly a

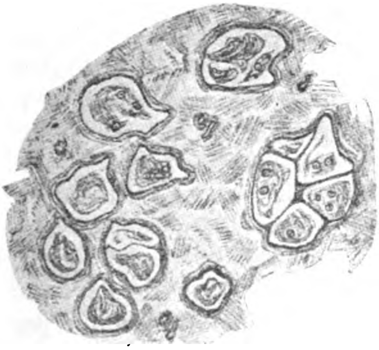
superior and inferior muscles, which besides were paler in color. The posticus muscle, on the contrary, had a tolerably normal color, and only its upper half differed in volume from that of the opposite side. All this pointed toward the fact that the process of disease was of a relatively recent date. This is shown by the following communication of Veterinarian Overbeek, of Steenwijk, who had treated the horse: "The animal had shown difficulty in respiration for only a few months. When standing quiet nothing could be detected; as soon, however, as the animal pulled an empty wagon for a distance of about one hundred metres in a trot a loud sound of stenosis during inspiration became evident. The animal, with the exception of the bladder trouble, had not been sick lately, and it certainly had not had pleuropneumonia or strangles during the last few years."

FIG. 14.



Recurrent nerve near the larynx.

FIG. 15.



Recurrent nerve near the origin of the ramus posticus.

Although the muscles only revealed slight changes, the condition of the recurrent nerve was quite different. However, the nerve mentioned was about normal as far as the middle part of the n with the exception of a few bundles (Fig. 13), which were pr pally composed of fine fibres. In the region of the laryn almost total degeneration could be observed, as is plainly sh in Figs. 14 and 15. Particularly in the last-mentioned illu tion, showing a section of the recurrent nerve at the place w the branch for the posticus muscle is given off, only a few prese nerve fibres can be found.

In addition the terminal pieces of both recurrents of sev larynxes have been subjected to a thorough microscopic exam tion. The results hereby obtained are, in short, that at the (left), where a muscular atrophy of some importance is present nerve also is almost entirely degenerated, and especially begin at the place opposite the cricoid cartilage—that is, just in fro the spot where the branchlet for the posticus muscle is given A few centimetres in a central direction a few (three or four) fi can yet be found in each bundle, while higher up they l entirely disappeared.

On the normal side (right) the terminal piece of the recur was frequently thicker than on the left. The difference somet amounted to more than half. Leaving out of consideration that and then a single nerve fibre was absent or destroyed, as occu all nerves, the nerve always turned out to be normal. When there were found in some muscles of the paralyzed side, in chr cases, muscle bundles more or less preserved, the nerves also sho more normal fibres than is usually the case. Of this a g example is seen in Fig. 12.

From the preceeding facts can be concluded that, with the ex tion of the rare cases in which the vagus or recurrent has bec diseased in a central direction by special causes, as tumors of neck or thorax, hyperplastic lymph ganglia, aneurism of the ac etc., the changes of the recurrent nerve in 99 per cent. of all c of nervous roaring are to be looked for in its most periph portion, that is, in the region of the larynx. The lesions th selves must probably not be looked upon as a neuritis, but a simple secondary process of degeneration. The not very impor proliferation of the interstitial connective tissue I regard als secondary. Already at a distance of 30 to 40 cm. from the lar traces of degeneration can be found. These are then confi however, to isolated nerve fibres. Sometimes there are fo further on, in a central direction, a few bundles entirely or pa degenerated; this is particularly the case in those which are c posed of fine fibres. The thoracic portion of the recurrent nerve was always found to be normal, even in those cases in which the left laryngeal muscles were entirely atrophied and when the disease was of years' standing; also when the disease occurred as a sequel to strangles or pleuropneumonia the thoracic portion of the recurrent proved to be intact. Especially at the place where the recurrent doubles around the aorta, and immediately behind this place, no macroscopic or microscopic changes could be discovered in the the nerve. In the cases in which only an atrophy of the adductors was present, which manifested itself during life by aphonia (frequent in stallions), the nerve degeneration was limited to the extreme terminal portion of the recurrent, especially beginning where the recurrent turns and continues its course under the thyroid cartilage, at the point where the small branches for the posticus and the transversus have already been given out.

Sooner or later the disease progresses in a central direction; the paralysis of the posticus becomes then more prominent, as is manifested by disturbances in respiration. If nerve fibres still remain in the peripheral portion of the recurrent, one also finds greater or lesser portions of the laryngeal muscles intact. This applies first to this and then to that muscle. The supposition that the posticus always has the advantage over the adductors does not hold good in the horse.

Notwithstanding that the process of degeneration is accompanied by proliferation of connective tissue, the recurrent on the paralyzed side has considerably diminished in circumference. Sometimes the circumference of the left recurrent only amounts to half of that of the right one.

The anatomical changes in laryngeal roaring are always more advanced in the nerves than in the muscles concerned. I have discovered this fact before after resection of the recurrent nerve.

Contrary to what I observed in experimental laryngeal paralysis, it is clear, from the cases described, that where the disease affects older animals (over eight years old) it can be of as severe a character as in roaring at a younger age.

There is considerable difference in structure in the twelve or thirteen bundles which form the recurrent. The greater half consists of coarser fibres, the remainder of finer ones, probably partly sensory in nature. It occurs to me that those halves, so easily distinguished from one another, are of a different origin. As this question has merely an anatomical importance, I will return to this at another place.

In this communication I believe I have thrown some li on the nature and character of laryngeal roaring, so frequent the horse. The etiological question is now in order.

About the exceptional cases in which compression of vagus recurrent plays a part (tumors, right or left), nothing new is be said. In man also this form has been closely studied. In veterinary field we are not as well informed on the toxic forms laryngeal roaring, among which lead-poisoning occupies a f place. About this I will communicate something later. Entir in the dark is the causa proxima of the ordinary idiopathic fo of hemiplegia laryngis of the horse, in which, as I have show the peripheral portion of the recurrent nerve is almost exclusiv involved. On this subject I could at this date make some co munication; I prefer, however, to await the results of furt experiments, in the hope that my present conception of the ca of laryngeal roaring will be confirmed.

THE VALUE OF CO-OPERATION IN THE SANITARY CONTR OF OUR PERIODIC EPIZOOTICS OF ANTHRAX.[1]

By W. H. Dalrymple, M.R.C.V.S.,
LOUISIANA STATE UNIVERSITY, BATON ROUGE, LA.

I can assure you I esteem it a great privilege and honor have been invited to present a paper before the State Medi Society of Louisiana.

The study of pathology covers a very wide field, and is not, any means, confined to pathological conditions affecting only genus homo, but is similar, whether it is applied to investigati affecting man, the lower animals, or even plants; and the sa may be said of hygiene and of sanitary science in general, es cially as we are now aware, through the indefatigable efforts the workers in the great field of bacteriology, that disease eve where depends so extensively upon the presence of the ubiquit microbe.

Fortunately for us, the pathological forms are in the minori although we are inclined, from our familiarity with them, I p sume, to think of bacteria as disease-producers only. Such impression, however, is altogether erroneous, as the great major of these lowly forms of life are of great economic value, a therefore, helpful to man in many spheres of life.

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[1] Read before the Louisiana State Medical Society, Shreveport, June, 1902.

It is but a year ago that the agriculturist was wont to look upon his soil as a mass of dead, inert matter, but which, by some unaccountable and mysterious agency, became fertile through the application of artificial or other manures. To-day the mystery is all cleared away, and he now knows that what he once thought to be sterile earth is one immense laboratory of germ-life busily engaged in the process of nitrification, manufacturing the insoluble fertilizing materials into soluble, and, therefore, available plant-food to be taken up by the delicate rootlets for the tissue-building of the plant.

Only a few years since two German scientists (Wilfarth and Nellreigel) elucidated the problem of the enrichment of soil consequent upon the growing of leguminous crops, which previously had been clothed in mystery. Following up their investigations they discovered that the various plants belonging to the natural order Leguminosæ had on their tiny rootlets, and root-hairs, minute nodules or tubercles, and that these enlargements contained within them great numbers of micro-organisms having the power of fixing the free nitrogen of the atmosphere, the most costly of fertilizing elements, and elaborating it for the use and benefit both of the plant and of the soil.

The great dairy industry has been the beneficiary of a discovery of germ-life where it was, perhaps, least suspected. Not so long ago that fragrant and delicious bouquet which we all desire so much in our butter was found to be a product resulting from the labors of a flavor-producing bacterium, the culture from which can now be purchased as a commercial commodity, and is within the reach of all engaged in this industry; and we are all familiar, of course, with the great value to various industries that the discovery of the different fermentations has been. But I have just alluded to one or two of the more recent investigations into the life-history of some of the economic bacteria to emphasize the fact that some forms—in fact, the much larger number—are not only beneficial, but necessary in this work-a-day world of ours.

Unfortunately, however, although few in number, the pathogenic forms are amply sufficient to carry destruction and devastation in their wake to the various forms of animal life with which we have to deal.

Of the different classes of pathogenic organisms, those which play the rôle of etiological factors in the production of transmissible and intercommunicable diseases may be said to be the most important from the standpoint of the pathologist, whether special or comparative, among which may be mentioned the ba anthracis, the bacillus tuberculosis, the bacillus mallei, the ba tetani, etc., all being spore-bearing, and, therefore, capable much more extended existence and a greater tenacity tha those that do not have a spore-bearing stage in their life cycl

Anthrax, the disease which is to occupy our attention for a while on this occasion, is produced by one of the spore-be forms, and it is to the tenacity or vitality of the spores, outs the animal body, is due the permanent infection of certain ities consequent upon the careless and improper disposal of an cadavers, which has, unfortunately, been the rule rather tha exception, in this and some of the other States for many This fact will be more readily appreciated when it is known anthrax is a true septicæmia; that is to say, the bacilli are al found in immense numbers in the blood of the charbonous vi at all events, immediately preceding and after death. Henc extreme virulence of the blood and tissues of the anthrax ca

The fact that this disease has been permitted to exist to s length of time in our midst, and with such periodic fatal re has, I think, been due almost solely to the general lack of inf tion relative to its true nature. Scientific progress, therefo endeavoring to ameliorate conditions, has been somewhat since the struggle has been against the enormous odds of in ulity, indifference, and ignorance; and, like all great r measures, satisfactory results depend largely upon the edu of public opinion.

It is not altogether astonishing, however, that the impor of such a contagious and fatal malady to man and beast s not have received more attention at the hands of the patholog our midst, or more appreciation by the laity, when we find an eminent authority as Surgeon-General Sternberg stating, voluminous *Manual of Bacteriology*, that "anthrax does no vail in the United States," a statement, I need hardly sa which there is absolutely no foundation in fact.

Before approaching the more specific part of my subject I thought it might be both interesting and acceptable to briefly to the historical, bacteriological, and hygienic (incl sanitary) divisions, in order that what application I may may be the more intelligible and pointed.

Throughout the civilized world this disease is known by v names and synonyms. By the Latin term anthrax it is k to the English-speaking medical world, although it has also re the names wool-sorters' disease, disease of rag-pickers, malignant pustule, carbuncular disease, splenic apoplexy, and splenic fever. It is most familiarly known to us by its French synomyn, charbon. The Germans speak of it as miltzbrand, or disease of the spleen. In Italy, carbonchio is given to it; while the Russians allude to it as jaswa, or siberskaji, jaswa, etc.

It is possible that anthrax is the most contagious and the oldest disease of animals known to medical science. It is said that the "sixth Egyptian plague," spoken of by Moses in his second book, was this very malady; and in his third book he indicates the transmission of anthrax to man by the intermediation of soiled clothing. The epizootic described by Homer in the first book of the *Iliad*, and which affected man, the mule, and the dog, was probably no other than anthrax. In the ninth book of his *Metamorphoses*, Ovid gives an exact description of anthrax epizootic.

Plutarch has given the history of an outbreak which existed in Rome about the year 740 before the Christian era. Dionysius, of Halicarnassus, 488, and Livius, 425, B.C., have mentioned examples of anthrax affections which exist first in animals living upon pastures, then in such as were kept in stables, in animals destined for sacrifices, in priests, shepherds and farmers, and lastly upon the whole population. So much for ancient history.

Coming down to a later date, we find that in 1617 the disease was prevalent, and of such a fatal nature, in the neighborhood of Naples, Italy, that over 60,000 people perished through eating the flesh of animals that had died of anthrax. In 1731 it made its appearance in several provinces of France. The years 1757, 1763, 1775, 1779, 1780 and 1800 were signalized by the charbonous malady, which extended nearly all over France and affected all the domestic animals. From 1800 to 1846 many outbreaks were observed, generally in the hottest months. In Russia, during 1864, in the five governments of St. Petersburg, Novgorod, Olentz, Twer, and Jaroslaw, over 10,000 horses and nearly 1000 persons perished from the disease. I might refer to records of devastation caused by anthrax in still other countries, but it seems unnecessary to go beyond the limits of our State for authentic information regarding the ravages of charbon, both in lower animals and, unfortunately, in many human beings as well.

In making some investigations, two or three summers ago, into the history of anthrax in Louisiana, I found that outbreaks were known as far back as some of the oldest citizens could recollect, notwithstanding the statement of General Sternberg to the contrary; and it is probable the contagion has existed and outb of the disease have appeared periodically for generations befo true etiological factor was known or even suspected. C quently sanitary measures were not thought of to ameliorate ing conditions; the contagion was permitted to spread th the medium of various agencies, and permanent infection gi foothold in those sections most favorable to the development specific organism.

Anthrax, then, is a specific disease, and can be produced through the medium of its own specific germ, the bacillus anth or, as I understand the more recent nomenclature of Miguel gi the bacterium anthracis, although it was not until 1845 that ch was believed to be contagious, when in that year Gerlach de strated it experimentally. In 1855 Pollender, of Wipper announced that in 1849 he had found in the blood of cattle af with anthrax a considerable quantity of fine little s These were also seen by Duvaine, of Paris, in 1850, an Branell, of Dorpat, in 1857. This last investigator based his nosis of anthrax upon the presence of these little sticks i blood, but he denied their disease-producing properties.

It was Duvaine, who, in 1863, recognized that these ele were bacteria, and that they constituted the specific agen charbon. Cohn was the first who considered the little sticks and suspected their sporulation. Delafond was the first who the cultivation of anthrax rods, and by exposing virulent to air he said that these little sticks became lengthened. renowned Koch, however, threw more light upon the develop of spores and their transformation into bacilli.

A great deal of interest must ever circle around this ch bacillus when we consider for a moment that the great and in able science of bacteriology has been developed through the i fication of this pathogenic organism.

In order to have a proper appreciation of the hygienic trea of anthrax we ought to know something of its bacteriology various channels by which the organism gains access to the a economy and the numerous media of transmission.

There are two great classes of bacteria; those req oxygen for their existence being termed aërobes; while the ana germs find in the organism deprived of oxygenated blood the favorable conditions for their multiplication.

It is to the first, or aërobic class, that the germ of an belongs, and must have oxygen for its life and develop and right at this point a very important sanitary fact seems to "fit in."

When an animal succumbs to anthrax, the vital food, so to speak, of the germ is cut off; and if the body is kept intact, and no blood is permitted to escape from the natural or other openings, it will be found on microscopic examination, twenty-four or thirty-six hours after death, that it will be difficult to discover an anthrax organism, they having evidently degenerated and died for want of oxygen, and become the prey of the putrefactive bacteria. If, then, the precaution is taken to prevent the escape of this germ-laden blood, and the carcass is immediately incinerated, the danger of spread or contamination from it is reduced to a minimum.

But, on the other hand, should blood be allowed to escape from the body through any channel whatever, the atmospheric oxygen is sufficient to revivify the bacilli it contains; and by a dying effort of nature to reproduce themselves, as it were, they are enabled to sporulate, the surroundings are contaminated with the virulent blood, causing no end of future trouble and probably permanent infection in the immediate locality.

In the blood of the living animal the anthrax organism exists only in the bacillus or rod-like form, and multiplies by fission or segmentation. Spores are not found in the vital fluid during life. Outside of the body we do not find bacilli, but only the spore form; and these, being much more resistant to external destructive influences, are capable of living, probably indefinitely, until they are taken into the system and there develop into bacilli. This is the generally accepted life-history, but it is possible that conditions may sometimes arise sufficiently favorable, outside the body, for the various phases in the life-cycle of the germ to be completed. The former, however, must be the most frequent, as examinations of anthrax-infected materials—with the exception of fresh blood—generally reveal the organism in the spore stage.

There are three recognized ways by which the germ of anthrax may gain access into the animal body, viz., by the alimentary tract, by the skin, and by the lungs; but it is rare for the disease to be transmitted directly from a diseased to a healthy animal.

Intestinal or internal anthrax is usually produced by spores which are ingested with contaminated food and water.

This mode of infection is frequent with us in the initial stage, and during the course of an epizootic, through previous infection in the first instance, and continued infection in the second, attributable in each case to the want of sanitary care in the disposal of animals that have died of the disease, their discharges ha infected the surroundings grazed over by healthy stock. virulent elements, after ingestion, in such cases gain access t circulation through the delicate intestinal wall.

Cutaneous or skin infection produces the form known as ext anthrax, carbuncular disease, malignant pustule, etc.

This variety is brought about by some method of ext inoculation. In the lower Mississippi Valley, at least, the nu ous varieties of flies belonging to the order "Tabanidæ horse-flies, are, in my opinion, more responsible than any cause of transmission in the lower animals, when they are provided with a source, such as charbonous blood, from whi obtain the virus. Of course, you are all familiar with the ext form of anthrax in the human being, and the various med transmission, some of which I will refer to a little later.

The third channel of infection is the respiratory tract, the sp in a desiccated condition, coming in contact, through inhala with the mucous membrane of the delicate air-tubes and ac the lungs. This form is known as pulmonary anthrax, sorters' disease, disease of rag-pickers, etc., and it has been cl established that the mode of entrance of the spores is throug respiratory organs.

Although the human subject, and especially those engag the business of wool-sorting, rag-picking, mattress-making, may frequently contract anthrax in this way, I am inclin think that in the lower animals it is by no means so comm by ingestion and inoculation. In fact, I should consider it unless in infected areas during very dry, dusty weather, the s in a desiccated state might be carried by the wind and inhale taken in through the same channel from dusty, contaminated or other feeding material which has grown on an infected soi containing spores of anthrax.

Before touching upon the various transmitting agencies it be asserted that, as the organisms of anthrax are found in numbers in the blood of the cadaver, this, as well as all tissues supplied by it, is virulent, and, therefore, capable of t mitting the contagion when brought in contact with any me by which it may be conveyed.

In the case of human beings, the contraction of anthrax the ingestion of charbonous flesh, insufficiently cooked to de the spores, although at one time apparently common, can no looked upon as of somewhat rare occurrence, I think, owi more modern methods in the preparation of meats used for human food.

The cutaneous and pulmonary forms of anthrax are of most frequent occurrence in man at the present time, and of the former there are some interesting records. For example, I have observed in an excerpt from the *Medical Press and Circular* that an English physician, residing in the island of Cyprus, encountered some remarkable cases of disease transmitted in the sting of the solitary ant. In one instance a woman was stung during sleep by one of these insects, and the wound showed active signs of anthrax infection. It was found upon investigation that in a field adjoining her cottage there was a dead sheep which had laid there for a week after having died of that disease. The article adds: "Here, then, is yet another insect to be added to the growing list of those that, while not dangerous in themselves, are capable of great mischief, owing to their transmission of malignant bacilli."

A few years ago an employé of the London general postoffice succumbed to anthrax infection by being inoculated with a piece of leather out of which he had been manufacturing hinges for a box in which to carry packages. It has been clearly demonstrated by actual test that the modern process of tanning is not sufficient to kill the spores that may be present in the blood of hides of charbonous animals. Hence the leather manipulated by this man must evidently have contained virulent anthrax infection.

Only last year I read of a case in an English medical journal where some boys became infected through taking to pieces the machinery connected with a carding mill. It not infrequently happens that the skins and wool of sheep that have died of anthrax find their way to the market. The wool may very easily become contaminated with charbonous blood, and, in the process of carding, the spores get on to the parts of the machinery. This, no doubt, was the manner in which the infection was transmitted to the unfortunate boys, who, at the same time had received abrasions of the skin of the hands.

The skinning of charbonous cadavers is, perhaps, the most frequent way in which external infection is produced in man; and right at this point I would like to emphasize the danger to human life, in the first place, and of spreading the contagion, in the second, by such procedure, which cannot be too severely deprecated.

There is hardly a year in which there are not cases of cutaneous anthrax among employés in the various tanning districts throughout the country by inoculation from the virulent blood of imported from countries in which the disease is prevalent, an refuse from such tanneries being carried by drains and st frequently finds its way on to meadows and causes extensive breaks of anthrax in cattle and other herbivorous animals gr upon them. This mode of bringing anthrax into the U States has caused the customs department to require a co certificate with all imports of hides, of one kind and another, various countries in which infectious and contagious diseases, as anthrax, etc., prevail. Such certificate is required to that all imports of hides are either dry-salted, arsenic or lime- and thoroughly disinfected according to the sulphur formul scribed by the secretary of the treasury. Exceptions are ma the case of hides shipped from Great Britain, Norway, Sweden abattoirs, for in these countries only cattle absolutel from all diseases may be slaughtered.

The pulmonary form (wool-sorters' disease) in man is duced through wool and horse-hair, in a similar manner t above alluded to in the case of the boys employed in the ca mill; but, instead of external infection, the dried spores, mi with dust and floating in the atmosphere of the rooms or shops, are inhaled and find lodgement in the respiratory orga

Coming to the lower animals and the different ways in anthrax infection is conveyed, I will first consider fe materials.

When herbivorous animals graze over pastures—and more cially if the grass be short—that have been soiled by the bl other discharges from exposed charbonous carcasses, an climatic and meteorologic conditions be favorable for the de ment of germ-life, they contract the disease through ingest the spores, producing internal or intestinal anthrax or charb

This is quite frequent in this State, more particularly d the early part of the season. But it is also possible, and i often happens, that anthrax is introduced, where it had no viously existed, through the medium of hay, grain, and ma tured foodstuffs that had been raised on infected ground.

I have had personal experience of at least two outb brought in this way. The first was in a valuable herd of J cattle in the State of Georgia, where the disease had not prev been known. The food in use was one of the " commercial f made up principally of the offal of different cereals, and s cattle feed. Some of the grains had evidently been raised infected area, and contained anthrax spores. No animals on the farm died except those fed this food; and one or two others succumbed, belonging to another owner who had borrowed some food for the purpose of trying it. It proved an expensive loan.

The other outbreak occurred in this State about seven years ago, and the fatalities amounted to some twenty head of sugar mules.

The vehicle in this instance was bran from one of the cereals, which, like the previous case, must have been raised in an infected district. A cessation of the disease followed the stoppage of the use of this food material, but which, after again resorting to its use, on account of the owner doubting its virulent character, destroyed several more animals. After total disuse of the bran there were no more cases. Anthrax had not been known to exist on this place before, or, at all events, within the recollection of the oldest inhabitant.

A somewhat celebrated lawsuit occurred only last year over an outbreak of anthrax on a farm in the north of England, thought to be introduced in some oil-cake for feeding purposes. The cake was examined, microscopically and bacteriologically, by a number of eminent British pathologists (among them Prof. John McFadyean, of London, one of the ablest in Europe, and a gentleman whom you may remember as replying to the famous paper of Dr. Koch at the last Congress of Tuberculosis held in London, and whom, I trust, I may be pardoned for referring to as a personal friend of my own), and was found to be infected with anthrax spores.

Water is another vehicle by which the contagion may be carried. This can readily be inferred from my previous allusion to infection being conveyed by running water from tanneries. Rains washing the virulent germ-laden blood from the surroundings of the exposed charbonous body can easily carry the contagion into streams, etc., and, on falling or receding, infection is left along their banks where animals graze, which may be quite a distance from the primarily infected locality.

Our carrion birds, as the buzzard and carrion crow, are, in my opinion, very important factors in spreading infection. For, after contaminating their feet with virulent blood from a charbonous victim, they may infect pastures wherever they alight, which may be miles from where they obtain the virus.

Our carnivorous and omnivorous animals, also, play quite a prominent part as disseminators of the contagion. After feeding upon the charbonous flesh, they may live long enough to travel

great distances, infecting as they go, before they, too, succum
become fresh foci of the disease and keep up its spread.

Among the agencies responsible for the transmission of the
ease in its carbuncular or external form, however, the nume
varieties of the tabanidæ, or horse-flies, are, in our section o
country, undoubtedly the most potent. Of these there are se
hundred, and the conditions seem to prevail which permit of
successful development and multiplication.

Porchinski, a Russian entomologist who has made a stud
the life-history and habits of this hitherto somewhat negl
order of insects, states that: “Water and arboreal plants ar
chief conditions of the existence and multiplication of the fa
to which horse- or gad-flies belong; and where these condition
absent, no tabanidæ are observed.” Now, all such favorable
ditions we possess in abundance in those sections of the
which suffer from anthrax.

It has been a matter of general observation that outbrea
this disease in epizootic form usually succeed periods of protr
drought in summer and after the breaking of such drought b
first few showers of rain. On the other hand, the disease r
occurs over an extended area, and if at all in only sporad
enzootic form during seasons in which we have frequent
copious precipitation. This may be accounted for, first of al
the fact that a lengthened dry spell of weather favors the dev
ment and multiplication of greater numbers of horse-flies, w
would be destroyed in the oval or larval stages by incessant h
rains during these more delicate stages of the insect's life.

Then, again, the moisture from the showers following the
weather, combined with the natural heat of our summers, b
about conditions favorable to the development of the latent
terial life already in existence in infected localities.

When heavy and frequent rains continue during our sum
we seem to have fewer of these flies, for the reason, no doubt,
stated, and it seems reasonable to presume that a great de
infection is washed from the surface of the ground and o
vegetation, and carried away by running water, which, unf
nately, however, becomes a menace to territory below, or thr
which such contaminated water passes.

Given, then even one charbonous carcass, with its infected b
and other tissues, left carelessly exposed on the surface of
ground, and a favorable season for the propagation and dev
ment of these blood-sucking flies, which will attack the an

even after death while the germ-laden blood is yet warm, and the merest tyro can conceive how hundreds or perhaps thousands of inoculations can be produced in healthy animals over quite a wide extent of territory. But, get rid of the anthrax-cadaver by incineration, if possible, and all transmitting agencies are deprived of the source from which the virus can be conveyed.

This is nothing more than a simple yet most important sanitary proposition, which if it had been more strictly carried out in previous years would have vastly restricted the area of infection in the State and been the means of a saving to our citizens of probably millions of dollars beside the lives of many individuals who have become victims to the disease through inoculation.

But although it may be improbable or even impossible to be able to rid the State of contagion, and especially from those localities which may be termed infected districts, that have been infected and reinfected from time immemorial, through want of a correct knowledge of sanitary science as applied to anthrax, it is possible to greatly limit the further spread of the contagion by the adoption of the proper sanitary measures in the future, and by immunizing our animals against fatal attacks of the disease at least. These include the careful and proper disposal of all charbonous carcasses, the thorough disinfection of localities and articles liable to have become infected, and preventive inoculation with prepared lymph to render our animals refractory.

This now brings us to the subject of artificial immunization, which I feel sure will be of some interest to those of you who may not have given to the matter any very serious consideration up to the present time.

It may be said that the most noteworthy application of artificially prepared living vaccines to the protection of animals against infection is seen in connection with this disease—anthrax.

The first preventive inoculations were made by Toussaint. This investigator used defibrinated blood of anthrax heated for ten to fifteen minutes at a temperature of 50° to 55° C. He did not secure, however, the true mechanism of immunity which he thought he had thus produced. The virulence of charbon cultures is very stable on account of the spores, which are little subject to change, and when it is desired to attenuate these cultures it is necessary to begin by preventing the formation of spores. Pasteur succeeded in this by cultivating anthrax bacilli at the temperature of 42° to 43° C., in the presence of oxygen. Multiplication of the bacilli still continues, but spores are no longer

formed. The bacilli which have become asporogenous at the al
named temperature then lose their virulent properties, retai
only those of an ordinary saprogenic organism, and finally lo
their vitality.

What is in use now as "anthrax vaccine" is a lymph con
ing cultures of these attenuated asporogenous bacilli.
material is generally used in two strengths. The preparati
the first virus, which is the weaker, requires twenty-four
exposure; that of the second twelve days; and they are in
lated at an interval of ten to twelve days apart; and immu
is conferred by this material for a period of about twelve mo
I will not tax your patience by recounting the successes obt
in other countries by this immunizing method.

We have sufficient evidence in this State of its efficacy fron
mere fact that previous to six years or so ago its use was al
totally unknown, and to-day probably 40,000 to 50,000 dose
employed annually throughout the State.

For the most satisfactory results the vaccine used mus
thoroughly reliable; the operation performed early in the sea
the syringe and needles and the skin at the point of puncture
fully sterilized; the animal kept from exposure to infection e
from flies or from grazing on suspected pastures during
interval between the first and second or for the prescribed
(some ten to fourteen days) after the administration of the se
lymph. On the other hand, if all the necessary precaution
not observed in dealing with such a dangerous and fatal ma
it is impossible to expect anything short of failure or at
indifferent success.

I am afraid, gentlemen, you will think the application o
topic has required a very lengthy preface, the greater porti
which might have been omitted; but I felt that the subject w
sufficient importance to warrant a somewhat extended résur
order that the application might be the more intelligible,
capable of carrying greater conviction with it.

We are face to face with a condition of a very serious na
menacing the lives, not only of our animals, but of our hu
population, and which I think calls for greater co-operative ac
Living in the midst of such periodic fatal epizootics of ant
we do not seem to realize the gravity of the situation as d
Northern neighbors, who are inclined to look upon Louisiana
the lower Mississippi Valley in general, in this connection, w
feeling of almost perfect dread. A member of the American

erinary Medical Association who visited this State during the prevalence of anthrax last year stated before the annual meeting of that Association, in Atlantic City, N. J., last September, that "we Northern men have not the faintest conception of the condition prevailing on account of anthrax that the veterinarians of Louisiana and Mississippi have had to contend with."

Now, the thought has frequently occurred to me when visiting outbreaks of anthrax throughout the country parishes that if practising physicians in those districts visited periodically by this disease would impart some of their knowledge of sanitary science to their clients, over whom they exert the usual wholesome influence of the family physician, telling them of the danger to be apprehended, and suggesting to them or directing them as to the absolute necessity for the exercise of strict sanitation, such as the complete destruction of carcasses and thorough disinfection, it would have a telling effect in preventing the spread of contagion in charbonous times. I do know of country practitioners who utilize their information in the education of their clients along such lines, and with splendid results. But I have heard of others who, on being asked for information, because the victim of anthrax happened to be a mule or a cow, exclaimed, with an air of wounded dignity: "I'm no mule or cow doctor, and don't know anything about it." The result of this has often been that some illiterate person, without any sanitary knowledge whatever, has been called in, and the contagion permitted to spread broadcast. This is surely not the spirit of the true pathologist. He looks upon disease as such, and does not consider the subject that accidentally has become the victim of it. Besides, in the case of the disease under consideration, its control and suppression should enlist the serious attention of the medical sanitarian, it being communicable to and extremely fatal in the human family, as well as the lower animals, as records of the past clearly show. It is well that it should be borne in mind, also, that the magnificent strides medical science has taken, and the exalted pinnacle to which it has attained in recent years, has been made possible largely through the untiring efforts of eminent research-workers in the great fields of comparative anatomy, physiology, pathology, and therapeutics.

It must not be inferred for a moment, however, that I am trying to suggest the necessity for physicians treating cases of charbon in animals. That is by no means what I am aiming at. My object is a purely educational one, and it can be accomplished at the expense of a very limited amount of effort. I am firmly of the

opinion that in charbonous sections of the State, and whe
educated and competent veterinarians are located, such se
being quite numerous, if, as I have previously suggestec
physician would, through his knowledge of contagious di
especially charbon, and of sanitary science, which is the
whether applied in the case of the higher or the lower ar
exert the influence he possesses in enlightening his clien
owner, as to the best measure to adopt to circumscribe con
and eradicate the disease, the beneficent results accruing
such a source would, in a few years, I feel convinced, excee
most sanguine expectations.

As I stated at the outset of my paper, pathology is a broac
ject and not confined to the study of disease in any one sp
The investigation of those maladies that are intercommun
should be of as much interest to the human as to the compa
pathologist, so much depending upon their control and exter
tion, in the interest of the health of the human as well as th
the domestic animals.

The control of anthrax is a matter which, in reality, con
the public health as well as the pockets of our stock owners
any measures calculated to bring about amelioration of ex
conditions would not only aid in the conservation of the p
health, but of the public wealth also. And I feel confiden
a little more co-operation all over the State in the sanitary c
of our periodic epizootics would tend very materially towar
more speedy accomplishment of the end in view.

NOTES ON A FEEDING EXPERIMENT TO PRODUCE LE ENCEPHALITIS IN A HORSE, WITH POSITIVE RESULTS.

By Tait Butler, V.S.,
RALEIGH, N. C.

THROUGHOUT veterinary literature, under various names
to be found numerous references to a disease generally knov
this country as "cerebro-spinal meningitis." More rece
Pearson has described outbreaks in Pennsylvania and Delav
reported positive results from a feeding experiment, and sugg
what he considers a more appropriate name — "forage po
ing."

The writer thinks he has seen this disease in both Iowa and Mississippi, and from his observations and what he has been able to learn from the literature at his command has noted the constant absence of marked macroscopic post-mortem lesions in the brain and its enveloping membranes. In fact, the absence of post-mortem lesions sufficient to account for the pronounced clinical phenomena and early death seems to be the most constant and characteristic feature of the disease.

Early in 1901, while at the Kansas Agricultural College, I also saw a number of cases of that disease which Mayo described, in 1891, as "epizootic cerebritis," and which Buckley, of Maryland, has more recently described as "acute epizootic leucoencephalitis." Moreover, during the latter part of 1901 those counties of North Carolina bordering on Albemarle and Pamlico Sounds were visited by a severe outbreak of this same disease, from which not less than 600 horses died. During the latter part of this outbreak, in the month of December, 1901, I had an opportunity to study the clinical history and post-mortem lesions of a large number of cases.

The disease described by Mayo and Buckley, and which I have seen in Kansas and North Carolina, differs very materially from the "cerebro-spinal meningitis" of veterinary literature and the "forage poisoning" of Pearson in that the macroscopic post-mortem brain lesions are constant, extensive, and extremely characteristic and confined to the white matter of the cerebrum. This constant essential difference in post-mortem lesions and the less pronounced but important differences in clinical phenomena lead me to suspect that we have, at least, two quite distinct diseases, due to different (although probably related) causative agents.

In a feeding experiment to produce a disease having no characteristic post-mortem lesions the identity of the natural and the experimentally produced diseases must be determined chiefly by the clinical observations; but in a case where the evidences of identical, extensive, and characteristic macroscopic post-mortem lesions are added there can be no reasonable doubt as to the positive nature of the results.

These introductory observations are thought necessary to prevent any misunderstanding as to the identity of the disease under consideration.

During the early spring of 1901, a Mr. Avery, living near Wakefield, Kansas, lost, within ten days, four pure-bred Percheron horses from acute leucoencephalitis. All exhibited similar symptoms, and post-mortem examinations revealed the char istic breaking down of more or less extensive areas in the substance of one or both cerebral hemispheres. The sa condition of the stable and adjacent lots was good. The supply came from a hillside far above the stable, and was b criticism. The rough forage, while not of the best qualit clean and sweet. The grain feed for three or four weeks diately preceeding the outbreak of the disease consisted o meal. The corn from which this meal was made when exa in the crib was found to be in very bad condition, probab or 15 per cent. being rotten, mouldy, and worm-eaten.

On our advice the feeding of this corn was discontinue although the other conditions remained the same no furthe occurred. A quantity of the worst of this corn was pick and shipped in sacks a distance of about forty miles to the cultural College, at Manhattan. A small quantity of the blown out by the sheller, in which was a considerable amo light and diseased corn, was also secured. It was all kep dry place until July 25, 1901, when the corn in the ea ground, cob and all, preparatory to feeding.

On July 16th two healthy colts were purchased for the fe experiment. They were of the light harness class, and twenty-three months old. They were confined in a dry lot than the surrounding country, furnished with shelter tha tected them from the sun and rain, and supplied with hy water from the town water-works.

From July 16th to July 25th, inclusive, they were each kilos of ear corn or corn and cob meal twice daily.

From July 26th to August 19th, inclusive, they were ea 1½ kilos of the suspected corn and cob meal twice a day, and August 3d to the 13th they received, in addition, one feed a mixed with the corn and cob meal—of the chaff from the s previously referred to, in all amounting to about 30 kilos. supply of suspected corn and cob meal having been cons these colts were fed on August 20th and the morning of A 21st (three meals) a quantity of good, marketable shelled co

One of the colts sickened and died at 11.40 A.M., August During the first ten days of the experiment each colt re daily about 5 kilos of alfalfa hay of the previous year's crop for the balance of the time each had daily about 6 kilos o bottom land prairie hay.

The writer left Kansas August 15th, and the following ob tions were made by Mr. A. T. Kinsley, M. S., assistant in the Veterinary Department of the Kansas Agricultural College: "The colt that died August 21st at 11.40 A.M. was apparently in his usual health at 7.15 A.M. At 8.15 A.M., having become entangled in the wire fence, he was assisted to his feet, but staggered away to the right until he came in contact with the fence again. At 11.40 A.M. he died, and the post-mortem was made at 1 P.M. The internal organs were carefully examined, but no lesions found except a few grayish-white blotches on the liver. The left cerebral hemisphere was soft to the touch, and when cut through the white matter was broken down extensively, nearly the entire hemisphere being involved. On section the right cerebral hemisphere showed only a small broken-down area."

The time which elapsed from the beginning of the feeding of this suspected corn to the death of the animal, between three and four weeks, corresponds very closely with my observations in the natural outbreaks of the disease.

ECTROPION AND ENTROPION.[1]

By S. H. Swain, V.S.,
DECATUR, ILL.

Eversion of the eyelids may be acute and temporary, or may be the consequence of chronic alterations or of traumatic injuries of contiguous parts, or a result of defect in the facial nerves supplying the orbicular muscles, or it may be due to acute inflammation causing hypertrophy of the conjunctival membrane; the eyelid is thus drawn away from the eyeball, its conjunctival surface turned out, and its cilia margin misplaced downward or upward according as the inferior or superior lid is the seat of the ectropion. The eyeball being thus deprived of the protection of the eyelid is exposed to continuous irritation, resulting in chronic conjunctivitis, weakening the eye, and finally causing partial or complete amaurosis.

The canine seems more subject to this malady than the equine or other families of domestic animals, and the inferior eyelid more subject to attacks than the superior lid.

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[1] Read at the Thirteenth Semi-Annual Meeting of the Illinois Veterinary Medical and Surgical Association, August 15, 1902.

TREATMENT. If the ectropion is the result of an attac acute inflammation it may then be successfully treated by freq applications of mild astringent collyria, and may be compos zinc sulphate, 2 grains; morphine sulphate, ½ grain, to 1 c of distilled water; or the following cooling lotion may be scribed: boric acid, 10 grains to 1 ounce of distilled water, quently and liberally applied; but if this astringent treat should after a fair trial fail to effect a cure the eyelid then be further everted and carefully curetted and then penc with nitrate of silver from one angle of the eye to the o parallel to but at a little distance from the margin of the ey after the lapse of a few moments the eye may be carefully wa out with clean water and treated as before mentioned with coo astringent lotions, and if necessary the pencilling with nitra silver may be repeated in about ten days, and in the even failure from the above treatment the surgeon should at resort to an operation. The eyelid should be drawn away the eyeball, the hypertrophied conjunctiva pinched up elevated by means of suitable forceps, and a section of suffi length and breadth removed to correct the ectropion, which require on the part of the operator accurate judgment, skill, dexterity; for if the section removed should not be sufficiently a slight ectropion will still remain after the wound has cicatri then, again, if the section removed should be too large the r will be entropion after cicatrization has been completed. after-treatment should consist of cleanliness and mild astrin lotions frequently applied as above mentioned, with light, e digestible food, diuretics, and physics if indicated.

Entropion.

This is the converse position of the eyelids to that of ectrop The free margin of the eyelids and the cilia are turned in ag the eyeball, keeping up a constant state of irritation, and the and distress caused by the friction of the margin of the eyelid the eyelashes must be very excruciating to the poor sufferer.

The time was when all these conditions of the eye attributed to wild or abnormally developed eyelashes, and empirics could always be found with tweezers in hand extrac wild eyelashes for the imaginary cure of any and all affectio the eye; now, it is well understood by the profession that t so-called wild hairs are only inverted eyelashes, a condition kn as trichiasis, and may be successfully treated by first extracting the offending hair and then piercing the seat of the hair—the hair follicles—with an electric cautery needle.

The symptoms are intolerance to light, the animal keeping the affected eye closed almost all the time; there is increased lacrymation, with the general symptoms of conjunctivitis. Entropion may be congenital, partial, or complete, or it may occur at any period of life from loss of tone in the levator palpebræ muscles, or it may result from rupture and collapse of the eyeball, causing the eyeball to lose its spheroidal shape, thereby permitting the eyelids to be inverted upon themselves, constituting entropium.

Treatment consists in excision of an oval or elliptical section of the eyelid sufficient to correct the entropion. The operation should be performed as near the margin of the eyelid as possible, taking care to leave sufficient breadth of skin at the margin of the eyelid for the insertion of stitches. After the excision of the parts designated above, the edges of the wound are to be carefully brought together by metallic sutures and the wound dressed with dry, antiseptic powder; probably one of the best is composed of iodoform, one part; boric acid, three parts; mixed and dusted on once or twice daily. The horse or other animal should now be so secured as to effectually prevent chafing of the wound. The indications for feeding, watering, and the constitutional treatment are the same as advised in ectropion.

GLYCOSURIA OF MUSCULAR ORIGIN. Cadéac and Maignon have demonstrated: (1) That glycosuria may result from crushing of the muscles, by ligaturing a leg; and (2) that this glycosuria is of muscular origin. This has been observed in the dog and guinea-pig by ligaturing the thigh or crushing the muscles with pincers. Clinical observation has also demonstrated this in the dog in fractures and crushing of the legs from accidents. Phenylhydrazin demonstrated the presence of glucose or glycosuria in the urine two or three days after the accident, which persisted from three to four weeks; that is, until the local alterations had disappeared.

The filtrate obtained by macerating for an hour, in distilled water, normal and crushed muscle showed the presence of only a trace of sugar in the former and a marked quantity in the latter. It seems, therefore, that at times diabetic urine may be of muscular origin.—*Rec. de Med. Vet.*

ABSTRACTS FROM FOREIGN JOURNAI

FRENCH.

Under the Direction of S. J. J. Harger, V.M.D.,
PHILADELPHIA, PA.

Gastro-intestinal Strongylosis in Ruminants.
after experimenting with various medicinal agents against
worms in the rennet and intestines of sheep, recommends a
cent. watery solution of creosote—60 to 150 grammes, accord
the age—to which is added from 2 to 6 grammes of thymol.
administration after twenty-four hours of fasting is usually
cient. At the end of a week the dose may be renewed.

The author also refers to the method for drenching sheep.
drench is liable to pass into the trachea if the nose is helc
level above that of the eyes. Four methods of drenching
used: The animal standing, sitting on the haunches and
between the legs of an assistant, lying on the side, and lyi
the back on an incline. The first two methods were pref
because most of the liquid, unless the animal struggled
passed directly into the fourth stomach; in the last two m
the drench first entered the rumen.

Moussue and Maratel had satisfactory results with arec
and extract of male fern, the latter being the most efficacious.
grains of the oleoresin of male fern were given, followed
laxative of sodium sulphate. Eight days afterward no ova
parasite could be found in the excrement. The flock beg
improve at once and, after slaughtering, no strongyli were
in the intestinal tract.—*Rec. de Med. Vet.*

Inoculation of Cancer from Man to the White
Mayet, in a note to the Academie de Sciences, relates his ex
ments upon this point: 54 rats were inoculated into the perito
with repeated injections of the non-filtered cancerous juice obt
by maceration in water. In some epithelial nodules were
at the necropsy. Five results were positive; 7 doubtful
negative.—*Rec. de Med. Vet.*

New Microbe of Cancer. Doyen claims to have founc
certain number of cancers a special microbe, designated by
micrococcus neoformans, which he has isolated and cultiv

Inoculations with the cultures reproduced the neoplasm. Injections of an extract from these cultures produced an inflammatory reaction at the seat of the neoplasm, which suggests to the author the possible preparation of a curative sera.—*Rec. de Med. Vet.*

PARASITIC THEORIES OF CANCERS. Borrel, at the International Congress of Medicine in Paris, spoke as follows upon the parasitic nature of cancerous tumors:

1. The *microbic theory* is opposed by histological proof. Cancerous and epithelial tumors are essentially characterized by excessive proliferation of the epithelial cell, which multiplies in the metastatic centres and always reproduces the elementary type of the initial tumor. Pathological growths caused by the action of microbes are tubercles or granulomata.

No known bacterium is capable of causing an abnormal proliferation of epithelial tissue.

2. The *coccidian theory* is based upon the existence of parasites belonging to the group of sporozores, reproducing by means of spores, living in preference in the epithelial cells, which they cause to proliferate so as to form veritable tumors. These elements described by authors are pseudoparasites—epithelial cells with a particular evolution or of intracellular inclusions of round, single, or multiple bodies, especially frequent in glandular epithelium and having only a superficial analogy with the coccidia.

The *blastomycetic theory* is based upon the yeast fungus as the causative agent. If such fungi at times exist in these tumors they are rich in the epithelial cells; fresh media inoculated with such products remain sterile, and animal inoculations with this fungus only produce simple neoformations having the structure of granulomata.—*Rec. de Med. Vet.*

BLOOD SERUM OF THE HORSE IN LAPAROTOMIES. The conclusions of Petit upon the use of the serum heated to 55° C. in abdominal sections are:

1. Ten c.c. of the serum may be introduced into the abdomen at the end of the operation.
2. An intraperitoneal injection may be made twenty-four hours after the operation.
3. These injections are harmless.
4. By stimulation of the phagocytes the serum of the horse heated to 55° C. may prevent infection in laparotomies.—*Rec. de Med. Vet.*

VACCINATION AGAINST CANINE DISTEMPER. Phisal prepared a vaccine with which he has vaccinated from May, to May, 1902, 1250 dogs. Some of these vaccinations wer upon packs of hounds, while others were isolated cases. S these were in contact with other dogs affected with distemp animals succumbed to the disease—a mortality of 2.8 per 30 were affected with a benign form of the disease.

Of the 37 that died, 26 contracted the disease after tl injection and 11 only after the second. Of the 30 benign 17 recurred after the first and 13 after the second vaccinatic

The author is of the conclusion that vaccination will ena dog to pass over the period of critical susceptibilty to the d and that distemper vaccination has a real value.—*R Med. Vet.*

PROPERTIES AND COMPOSITION OF THE MILK OF THE The milk of the ass is characterized by a grayish-blue peculiar odor, alkaline reaction, a flocculent precipitate in b and, when fresh, unlike cow's milk, does not give the reac starch or of Arnold.

Composition and Chemical Properties. 1. The albu corpuscles of the milk of the ass are similar to those in w milk; the proportion and chemical properties of the albumin, and globulin are also almost identical. Upon cow's milk is clearly different. The milk of the ass is furthe acterized by its richness in absorbable albumin, the abse nucleo-albumin, the special properties of its casein in the p of acids, pepsin, gastric juice, etc. 2. In asses' milk the qu of fat and lecithin is relatively little abundant in compariso that of cow's milk. This fat is besides quite different fro of woman or the cow. 3. The percentage of sugar is a between that of woman and the cow. 4. The quantity of about the same as in the other two. 5. The milk of th more aqueous. 6. After artificial digestion it does not c paraneucleius, which digest with difficulty, while in cow' these products after artificial digestion are very abundant. colostrum, unlike that of cow's milk, which is rich in ca relatively poor in albumin.

It results from these observations that the compositio nature of this milk are sensibly different from that of cow's and rather approach that of the milk of woman.—*An. d Vet.*

REPORTS OF CASES.

A CASE OF HÆMATIC FILARIASIS IN A DOG.

By Charles F. Dawson, V.S.,
Lake City, Fla.

Six months ago a hunting dog was brought to me suffering, so the owner stated, with rheumatism. The animal had been treated through the "Veterinary Column" of a newspaper unsuccessfully. I made a careful examination, but failed to find any soreness of the muscles or joints. The hind legs appeared quite slender, and shifting lameness was a prominent symptom. There was shortness of breath, slight fever, and a somewhat tumultuous heart, although no murmur could be detected with the unaided ear. The appetite was good and thirst pronounced. Emaciation was somewhat marked, and the dog was nervous and debilitated. The anus was relaxed, and the breath was foul and the eyes sunken. Suspecting heart disease, I prescribed a heart tonic, which benefited the animal. The owner finally abandoned treatment and the case passed from my notice. Finally the owner notified me the animal was down, in convulsions, and that he expected it to die at any moment. The animal died during my absence, and, upon my return two days later, I exhumed the body and made an examination. Decomposition had progressed to a stage which precluded a minute description of the changes which must have taken place in the important viscera.

There was considerable bloody effusion into the peritoneal, pleural, and pericardial cavities. Upon section of the heart a mass of worms appeared in the right ventricle. They were twisted in every conceivable direction around the columnæ carnæ. Study showed the worms to be filaria immitis. There were four females, the largest being 30 centimetres long, and two males, each about 18 centimetres in length.

Reports of the sudden deaths of dogs lead me to believe that this affection is common in Florida.

Dr. O. M. Norton, a graduate of the University of Pennsylvania, class of 1901, has succeeded Dr. H. M. Watson, who has located at Haverhill, Mass.

EDITORIALS.

THE PENALTY OF NEGLECTING VETERINARY MEDIC

We have often urged upon our readers the precept that it not wise for practitioners of medicine to fail to inform thems to some extent in comparative pathology. What comes of neglect? Ignorance of the connection between disease in lower animals and disease in man, ignorance even of the exis among human beings of certain malignant diseases of dom animals. The veterinarians properly insist upon the impor of their work from the point of view of the public health seldom so cogently as was recently done by W. H. Dalryn M.R.C.V.S., of the Louisiana State University, in a paper en "The Value of Co-operation in the Sanitary Control of Periodic Epizootics of Anthrax," read before the Louisiana Medical Society in June, and published in the August numb the *New Orleans Medical and Surgical Journal.*

Those of us—and we are not a few—who have seen occas cases of malignant pustule in the human subject do not need told that Surgeon-General Sternberg was in error when he s in his *Text-book of Bacteriology* that anthrax did not preva the United States, unless, indeed, he used the word "prevai a sense that would suggest an ever-present pestilence; bu of us probably are aware of the amount of devastation wr by the disease in Louisiana and Mississippi. A striking pi of the facts is given by Professor Dalrymple, and his recomm tions for restricting outbreaks are such as must commend t selves to those who reflect upon the situation. But it is n these features of his very interesting communication that we now direct attention, but to the eloquent plea that he mak comparative pathology as a subject of thought with the m profession in general.

He says he knows of country practitioners who have t their veterinary knowledge to account in times of anthrax zootics by informing the people of their danger and inculc such sanitary precautions as the complete destruction o carcasses of animals that have succumbed to the disease the practice of thorough disinfection, and the results have brilliant. "But," he adds, "I have heard of others wh being asked for information, because the victim of an happened to be a mule or a cow, explained with an air of wounded dignity, 'I'm no mule or cow doctor, and don't know anything about it.'" The dignity that needs to be so safeguarded must, we should say, be made of very unsubstantial stuff. The result of such a reply, says the author, has often been that some illiterate person, without any sanitary knowledge whatever, has been called in, and the contagion been permitted to spread broadcast. It does not, he aptly says, indicate the true pathologist to disclaim all interest in the disease of the lower animals, for he "looks upon disease as such, and does not consider the subject that accidentally has become the victim of it." And he is quite justified in deprecating forgetfulness of the fact that "the magnificent strides medical science has taken and the exalted pinnacle to which it has attained in recent years" have been largely owing to the efforts of veterinarians.—*New York Medical Journal*, August 9, 1902.

ANOTHER DANGER SIGNAL OUT.

At last the field of veterinary science has been invaded under the auspices of a correspondence school. Its advent is announced from Iowa, and no doubt will be followed by like institutions in other States to gull money out of easily deluded fools over the land.

It is extremely unfortunate that it should have its birth through the announced promotion of one of the members of the Iowa State Veterinary Medical Association, and that body should most summarily deal with the offender by expelling him from the Association.

Iowa has never done better work for the true growth of the profession than during the past five years. The college at Ames has been materially strengthened in her teaching staff, and more financial aid to this department is expected in the near future. The State Association is one of the most active and progressive in the land, the officers and members are all active in good work, and it was the last field in which to look for the development of such a dangerous institution. The seductive letters sent out by the head of this correspondence school are dangerous, indeed, and the commercial aspect of the whole movement is written between the lines as plainly as the noonday sun. It should, in the language of the Scotchman, "be scotched," and we are sure our Iowa friends will lead in the effort.

ANOTHER SCHOOL IN THE FIELD.

THE advent of a third school in Kansas City, Mo., now r
that municipality the "City of Veterinary Colleges." Wit
schools already doing work at that centre one is at a loss a
distance to comprehend or conjecture good reasons for this se
interest in veterinary education. We say veterinary educ
not higher veterinary education, for a State that defeats in
session of its Legislature any bill tending to regulate or rai
standard of veterinary education is not destined to sustai
movement of progress along such lines. In that it is a rival
year school of one already in existence in that city and th
growth of internal dissensions in that institution, we can ho
but little good from such undertaking. That it may termin
the closing of both of these two-year institutions and the str
ening of the one three-year school in that city is to be de
desired and prayed for. Not one of these institutions can
properly in strength, not one can do advanced work, not on
raise the standard of veterinary education as it should be adv
not one can sustain a proper teaching Faculty or lead to safeg
in regulating the practice in Missouri under the present cond
as they exist, and the rivalry, the competition for suppo
jealousies, the intrigue, and ultimate disaster are all to add
burdens to veterinary progress and do immeasurable injury
profession in their own city and State.

NECROLOGY.

DR. W. T. MILLER, of Apollo, Pa., died June 18,
He was a graduate of the American Veterinary College, c
1887, a member of the American Veterinary Medical Asso
and the Pennsylvania State Veterinary Medical Association

ALTERNATING CURRENTS.

UNCLE HENRY ON PASSING OF THE HORSE.

EVERY little while they tell us that the horse has got to go
First the trolley was invented, 'cause the horses went so slo
And they told us that we'd better not keep raisin' colts no

When the street cars got to moting that the horses pulled before
I thought it was all over for old Fan and Doll and Kit,
S'posed the horse was up and done for,
But
he
ain't
went
yit.

When the bike craze first got started people told us right away,
As you probably remember, that the horse had saw his day.
People put away their buggies and went kitin' round on wheels;
There were lots and lots of horses didn't even earn their meals.
I used to stand and watch 'em, with their bloomers as they'd flit,
And I thought the horse was goin',
But
he
ain't
went
yit.

Then they got the horseless carriage, and they said the horse was done,
And the story's been repeated twenty times by Edison;
Every time he gits another of his batteries to go,
He comes whoopin' out to tell us that the horse don't stand a show,
And you'd think, to see these chauffeurs, as they go a-chauffin', it
Was good-by to Mr. Dobbin,
But
he
ain't
went
yit.

When the people git to flyin' in the air, I s'pose they'll say,
As we long have been a-sayin', that the horse has had his day,
And I s'pose that some old feller jist about like me'll stand
Where it's safe and watch the horses haulin' stuff across the land,
And he'll mebby think as I do, while the crowds above him flit,
"Oh, they say the horse is done for,
But
he
ain't
went
yit."

SOCIETY PROCEEDINGS.

THE following important letters have been issued in connection with Pennsylvania State Veterinary Medical Association, seventh annual meet

DEAR DOCTOR: The profession of Pennsylvania has just received unique gift of the library of the late Dr. R. S. Huidekoper, through generosity of one of our members, Dr. Thomas B. Rayner. It is a important matter that this library should have a complete record of profession's history and advancement as chronicled in our veterinary j nals, and I write to ask you to send me copies of the various veteri periodicals that have been published in our country during the last f years, with a view of endeavoring to make up files of all these periodi have them suitably bound and placed with this valuable collection th ours for reference and consultation, and which will remain a sour information and value to the future profession of our State.

Write me what you have and would be willing to give with a vie completing these records. Very truly yours,

W. L. RHOADS,
Preside

DEAR DOCTOR: The semi-annual meeting of the Pennsylvania S Veterinary Medical Association will be held in the Board of Trade Ro No. 25 North Sixth Street, Reading, Pa., Tuesday, September 16, 190 10 A.M.

There will be a number of papers read by some of the most progre veterinarians in our State. The reports of cases also will be of esp interest. We trust you will lend your aid by being present and taking in the various discussions at the regular meeting during the day.

Programmes of the meeting will later be sent to all our members others who are interested enough to write for them.

The question of good roads is becoming most potent in Pennsylva It is of utmost importance to every taxpayer and every horse user or o throughout the State. As President of the State Association, I feel one of the greatest benefits we can bring to the horse raiser or user awaken an increase of interest in the matter of "good roads." This q tion, as exemplified by the profession, has not been made public eno and in consequence of this I have decided to have an evening sessio our semi-annual meeting, to be held in the Board of Trade Rooms, N North Sixth Street, Reading, Pa., Tuesday, September 16, 1902), t devoted to the consideration of "good roads."

I shall have to address us at this meeting some who are especially d ing their attention to its consideration, as well as members of our Ass tion and the profession who are equally interested therein.

You cannot afford to miss this meeting, and we cannot afford to you miss it; so I trust, to save us both, you will make a special effo attend. Assuring you of a royal good time and a profitable experie hoping to hear from you and trusting I may meet you and your fri who are interested in our work at Reading, September 16th, I am,

Fraternally yours,
W. L. RHOADS,
Preside

REPORT OF COMMITTEE ON SANITARY SCIENCE AND POLICE.[1]

By C. J. Marshall, V.M.D.,
PHILADELPHIA.

I have nothing of special interest to report as a member of this committee. There have been no outbreaks of contagious diseases in this section to require any special attention. There has been no decided effort to better or improve the system of city meat and milk-inspection. This subject has been conspicuous for the lack of effort that has been made.

The Keystone Veterinary Medical Society has appointed a committee to investigate the milk-supply of the hospitals and public institutions in the city. A circular letter has been sent to the superintendents of these institutions for the purpose of obtaining data to assist this committee in its work, which, when completed, we will hope will be of great benefit to the public institutions, at least in the matter of a better milk-supply.

The work being done by the Milk Commission of the Philadelphia Pediatric Society is progressing nicely. At present there are three dairies producing milk under its requirements, and this commission is certifying to its purity. One more good-sized dairy has pledged itself to furnish certified cream under the direction of the Milk Commission, and is to begin on the first of April. With but one exception, the producers have been able to fulfil the requirements of the commission the past year. The buildings on one farm were destroyed by fire, and for two months this producer was not able to satisfy the commission. We believe the work of this commission is along the right lines, and that it should receive all the encouragement and assistance possible from our profession. There is a chance for much improvement in this work. They have set the requirements high, yet there is no reason why they cannot be complied with if the efforts on the part of all interested parties are constantly applied. It seems necessary that the commission should furnish minute and explicit directions as to how all parts of the work shall be done. It is not sufficient to say that everything around the stable must be kept clean. The subject of cleanliness seems to be relative. One man's ideal is not that of another. It seems better to go into details on this subject and make certain definite rules how cleanliness must be obtained. As, for instance, the cows must be groomed once daily. The floors must be swept once each day and scrubbed once each week. The men shall wash their hands in soap and water and dry them on a clean towel and put on suitable clean milking suits before beginning to milk, etc. Rules from the commission are more easily enforced than those issued by the veterinarian or foreman.

We note with much pleasure the harmonious manner with which the State Live-stock Sanitary Board conducts its work and the increased confidence the stock raisers of the Commonwealth have in this board. It seems that it has become a necessity in the short time that it has been in existence. We believe that its rapid growth, as well as its birth and the respect in which it is held by the veterinarians as well as by every person who owns stock in this State, is due largely to the efforts of our Veterinarian and the polite and skilful manner with which he conduc work. It has not only benefited our profession in all sections of the but it can be held up as a model for other States to follow. We b that there is no other State in the Union where this kind of work is organized or its system more thoroughly executed. It brought an amalgamation of the profession in our State. The success has brought about largely through the skill, honesty, and perseverance which each veterinarian has assisted in carrying out his part of the We should guard the good reputation of the State Live-stock Sa Board and the State Veterinarian with jealous watchfulness, and as every way possible to advance its usefulness.

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[1] Presented at the annual meeting of the Pennsylvania State Veterinary Medical Association, March 4 and 5, 1902.

Among the many features of the State Live-stock Sanitary Boa would note especially the bacteriological laboratory and our able ba ologist, Dr. M. P. Ravenel, whose voice was heard at the International gress on Tuberculosis, held in London last summer. He was able to the statement made by the mighty Koch, through the careful investig made by Dr. Pearson and himself in the laboratory of our State No government, national or State, is making more careful or stre efforts along the lines of investigating all phases of the subject of tu losis than is being carried on by these two men.

One of the most perplexing subjects in connection with dealing bovine tuberculosis is, What shall be done with the tuberculous c The board has found that the small appropriation made by the St sufficient to pay for only a small percentage of the cattle that react tuberculin test. The farmers who have tuberculous herds are findin that they cannot afford to get along without the tuberculin test. cannot afford to lose the ones that react. The State cannot afford for them, and the owner is not allowed to sell them.

We know that the reacting cows can be kept in such a way that cannot spread the disease. We also know that the milk can be safely from a large percentage of such cows under certain definite condition

It would seem just and reasonable that we use our influence to about some plan by which the maximum amount of usefulness c harmlessly derived from these reacting cases.

This committee would recommend for the consideration of this Associ the suggestion made by "Columella" in the January number o JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHI for "the disposal of tuberculous animals." His suggestions are a lows: that certain persons be given a license to purchase and keep t culous animals, under conditions prescribed by the State Live-stock tary Board. This license also permits such owners to raise the calve sell the milk and butter from such cows. We realize that this plan be safely and profitably carried on; whether it is advisable to do s leave for future consideration.

We would also compliment our Association and the profession at for the speedy and effectual manner in which the Stiles bill was sidetr since our last anual meeting, and that the requirements for admissi our ranks are still faithfully and watchfully guarded by the State Bo Veterinary Examiners. We recommend that this Association expre unqualified approval to the Governor, Hon. William A. Stone, fo good judgment exercised by him in the well-merited reappointment of our esteemed colleague, Dr. W. Horace Hoskins, as an active member of the State Board of Veterinary Medical Examiners.

REPORT OF COMMITTEE ON ANIMAL HUSBANDRY.[1] (No. 1.)

By George B. Jobson, V.S.,
FRANKLIN, PA.

In the previous reports of this committee figures were given showing the importance of and the amount of wealth invested in the animal industry of Pennsylvania. While these figures giving the numbers and estimated value of the horses, cattle, sheep, and swine in this State show the immense capital invested in live-stock, it is not merely from a commercial or financial standpoint on which we must base our estimate of the relative importance of this industry to the citizens of our Commonwealth. When we take into account the fact that the wholesomeness of the products derived from our domesticated animals, in the form of meat, butter, and cheese, is largely dependent on their health, their sanitary surroundings, and methods of handling these products, we begin to appreciate in some measure the importance of the animal husbandry in relation to the health of the consumer.

We endeavored to demonstrate the position which the veterinary profession holds to the animal husbandry of this Commonwealth—that the mission of the veterinarian, as formerly understood by his client, lies not so much in curing the diseases of animals as in their prevention and control, by advising the owner regarding the enforcement of efficient sanitary and hygienic measures which shall prevent the approach of or control the spread of disease.

The reports issued by the agricultural department of the several States and the Bureau of Animal Industry are all prominent factors in educating the farmer regarding the necessity of adopting such measures as shall provide for the comfort and sanitary condition of his live-stock; and to keep in line with these improved educational advantages enjoyed by our agricultural friends the education of the successful veterinarian in rural districts will necessarily require to embrace a course of study which shall enable him to give intelligent advice in regard to the sanitary housing, feeding, and general care of farm stock. While probably not so essential, a knowledge of the good qualities and points of the various breeds is a very useful qualification.

The State Live-stock Sanitary Board is still fighting the good fight for the control and stamping out of bovine tuberculosis. The badly infected herds having been first inspected, those now being tested show a much smaller percentage of diseased animals. While the public generally appreciate the good work which is being done by the board for the control of tuberculosis within our own borders, and preventing the entry of untested dairy and breeding stock into this State, yet there are a few noisy and carping critics who make wholly irresponsible and unfounded statements regarding cattle inspection and the tuberculin test, which only go to show their own ignorance of the utility of this test for the detection of tuberculosis.

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[1] Presented at the annual meeting of the Pennsylvania State Veterinary Medical Association, March 4 and 5, 1902.

It is to be deplored that a few of our live-stock journals are still prej
against the tuberculin test as a means for the diagnosis of tuberculos
recent communication in one of these journals by a veterinarian r
in a neighboring State was not only a breach of professional courte
a gross insult to the veterinarians of Pennsylvania.

There does not appear to have been any severe epizootic disease
live-stock since our last report. A form of hemorrhagic septicæmia oc
in a herd of dairy cattle near Corry, during the latter part of Sept
and at the same time in a herd in Warren County. It was charac
by severe hemorrhagic diarrhœa, elevated temperature, and rapid r
tion, and in the majority of the animals affected proved fatal in
hours. At both places the cattle were pastured on poor, unreclaime
partly in the woods, and the water-supply was bad, being the
drainage from the land. Removal to other quarters and feedin
fodder stopped further extension of the outbreak. On suspicion of an
specimens from animals affected in both herds were forwarded to the
riological laboratory of the State Live-stock Sanitary Board, but the
were reported negative. One or two of the last animals affected,
lingered for some weeks after being attacked by the disease, were
tered for post-mortem examination. The lesions found in this cas
only those of simple gastro-enteritis. The abomasum, pyloric orifi
intestine adjoining the organ were intensely inflamed on their muco
face. The ileocæcal valve and colon in spots were also affected
same manner. The débris of dried leaves in considerable quantity
with corn fodder which had been lately fed, were found in the rume

The demand for dairy inspection by municipalities is increasing, alt
much remains to be done by way of educating the public regardi
advantage of inspection in providing a pure and wholesome milk-
for consumers. When a system of milk-inspection is first introduc
district it is well to make the requirements not to exacting, but gra
lead up to that point which will give a good and efficient system of i
tion. The difficulty in most cases is not that the milk is of poor q
but in impressing on farmers and dairymen the necessity for pro
enough air space, plenty of light, keeping the stable in good sanitar
dition, and having proper conveniences and methods for cooling and
ling the milk.

It is with pleasure we note the demand for and good prices reali
all classes of farm stock, horses, fat cattle, dairy stock and its produc
the generally improved financial condition of the farmer. Usuall
this financial improvement the agriculturist desires to improve the
of his live-stock. This increased value creates a demand for the s
of the veterinarian when they are attacked by disease, which prov
closely the prosperity of the veterinarian is dependent on that
farmer.

REPORT OF COMMITTEE ON ANIMAL HUSBANDRY.[1] (N

This is a subject of great importance to us. If animal husbandr
our practice is gone.

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[1] Presented at the annual meeting of the Pennsylvania State Veterinary Medical
tion, March 4 and 5, 1902.

No legitimate industry can suffer without rebounding to the injury of society in general, and most certainly none can take rank ahead of the industry that affords the human family its meat and milk-supply as well as the chief part of the power used in tilling the ground, storing, preparing, and moving the crops, delivering the articles of commerce to the doors of our homes, and moving the engines of destruction and our rough riders in time of war.

From the careful investigation of the *American Agriculturist* we find a loss of 4 per cent. in farm stock values during the twelve months from January, 1901, to January, 1902, the total shrinkage being over $125,000,000, notwithstanding a moderate increase of numbers in all classes of animals except hogs.

The average price of horses has declined 2 per cent., mules 1 per cent., cows 5 per cent., cattle 11 per cent., sheep 10 per cent., while hog values have advanced 17 per cent. If this condition prevails only in the drought-stricken districts we might consider the cause local, but in every State the decline is noticeable and quite uniform. Of course, the high price of feeds and forced sales of stock have had their influence; but, aside from these, there are plain indications that the upward trend of live-stock values is over and on the decline. We hope and trust they will not again reach the ruinous prices of 1896.

The average price of hogs increased $1.11 per head the past year, making a bright prospect for the hog raiser who is well stocked and well posted in economical production. Prices will doubtless be well maintained for at least one year, owing to the unusual slaughter of store hogs and brood sows causing a light pig crop this spring. In fact, anomalous conditions are present among the other meat producers (cattle and sheep).

Cattle known as stockers can be bought lower than at any time in recent years, while prime beef cattle and veal calves are at top notch. Store sheep and lambs have ruled low, while the well-fattened carcass markets well, giving the man who has capital and understands the science of feeding a chance to make money. It is true that the farmer has shown prudence in hesitating about feeding on corn alone this winter; but cottonseed and linseed meals and the gluten foods are proportionately lower and can be profitably used, with corn, in making beef, pork, and mutton, while the value of the manure heap is greatly enhanced.

The Eastern farmer who raised one hundred bushels of corn to the acre and laid in a good supply of nitrogenous foods during the summer and early autumn has been in position to turn the markets to good advantage.

The feeding problem is of first importance in animal husbandry, and the veterinarian should be the farmer's ready adviser under the varying conditions.

REPORT OF SEMI-ANNUAL MEETING OF THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

THE semi-annual meeting of the Veterinary Medical Association of New Jersey was held at Statter's Assembly Hall, No. 842 Broad Street, Newark, on Thursday, July 10th.

The following members responded to the roll-call:

Drs. A. W. Axford, A. Brown, T. Earle Budd, D. J. Dixon, J. M.

Everitt, J. B. Finch, W. J. Fredericks, J. O. George, James T. Gle
G. P. Harker, W. F. Harrison, R. C. Hasbrouck, E. A. Hogan,
Hopper, B. F. King, E. L. Loblein, Seth Lockwood, William H
Lowe, A. P. Lubach, Charles T. Magill, E. Mathews, James T. McDon
James M. Mecray, John M. Mitchell, John P. Mathews, E. F. Me
E. R. Ogden, George W. Pope, Werner Runge, T. E. Smith, A. T. S
M. M. Stage, S. S. Treadwell, L. E. Tuttle, and H. Vander Roest.

Hon. S. B. Ketcham, of the State Tuberculosis Commission, an Samuel Glasson, veterinarian in the United States army, and on months' leave of absence after a term of service in the Philippines, in attendance as guests of the Association.

The following approved applications for membership were in the of the Secretary:

Dr. Phineas Bridge, of Montclair; Dr. G. Walter Dilkes, of M Hill; Dr. John L. McCoy, of Sussex; Dr. John C. Peterson, Jersey Dr. T. B. Rogers, Woodbury; Dr. George B. Vliet, Hackettstown Dr. Thomas H. Ripley, Newark.

Upon ballot the above were unanimously elected to membership.

Drs. Bridge, Dilkes, Rogers, and Vliet were present, and were intro by President Lowe.

Great interest centred in the report of the Committee on Legisl and as Dr. Budd, chairman, recounted the work of the committee an efforts put forth on behalf of the bill which has now become a law for the regulation of the practice of veterinary medicine, surgery dentistry in the State of New Jersey, no one present could fail impressed with the fact that in organization there is power if i organization there be a common aim and men who are willing to sa time, money, and energy without expectation of personal aggra ment.

The impression prevails that the story was not half told by Dr. Men who achieve are usually endowed with a corresponding modest it must be left to others than the members of this committee to narrate the difficulties met, the tact displayed, and the untiring e exhibited by those to whom the Association entrusted this imp measure.

He would be a dull man who, in the light of the passage of th could not see the veterinary profession of New Jersey reaching a h plane. He would be a poor Association member who, after listeni the report of the Legislation Committee, did not "enthuse" or feel to be affiliated with an organization which stood for advancemen thus may be explained a feeling of optimism and dignity which per the meeting held at Newark on the 10th.

After the report of the Legislation Committee had been receive thanks, Dr. Lowe was called from the room, and with Dr. Budd i chair a purse was raised and a committee dispatched to purchase a st silver dinner set for presentation to Dr. Lowe in recognition of the put forth by him in behalf of the recently enacted law. The presen was made at the close of the banquet, and will be referred to later.

Under "new business" Vice-President Budd again assumed the in order to enable President Lowe to present several matters, whi here given as presented to the Association.

Recognition of the Passaic County Veterinary Medical Association.
(On motion of Dr. Lowe.)

MR. PRESIDENT: I take great pleasure in reporting that ten regular practitioners of veterinary medicine resident in Passaic County met at my office in the city of Paterson, on Monday evening, July 7, 1902, and organized a Passaic County Veterinary Medical Association.

It is the intention and purpose of this organization to be in affiliation with the Veterinary Medical Association of New Jersey, and it was resolved that the Passaic County Veterinary Medical Association should be to the veterinary profession of the county what this Association is to the profession of the State.

The members of the local organization pledged themselves to do all in their power as individuals and as members of the Society to advance and promote the common interests of the profession in the county of Passaic.

The veterinarians of the various counties, wherever there are a sufficient number of practitioners to warrant it, should organize county societies in their respective counties. Nothing, in my opinion, would strengthen the State Association more than live county societies.

The organization of the Passaic County Veterinary Medical Association, I predict, is only the beginning of a movement to establish similar local organizations throughout the respective counties of the State. Mr. President, I have the honor to announce the Passaic Veterinary Medical Association, duly organized in said county, as the first born. I now move you, in behalf of the local organization, that the Veterinary Medical Association of New Jersey now in convention assembled officially recognize, declare, and accept the said Passaic County Veterinary Medical Association as the county organization of the county of Passaic, in the State of New Jersey, with all the rights and privileges belonging to or appertaining to a county association, so long as nothing in its Constitution, By-laws, or Code of Ethics shall be inconsistent or conflict with the Constitution, By-laws, or Code of Ethics of the Veterinary Medical Association of New Jersey. The motion was unanimously carried.

Dr. Lowe then spoke of the tireless and able efforts of Senator Wood McKee, which rendered possible the recent veterinary legislation in the State; also reference was made to the evident approval, on the part of Governor Murphy, of the efforts of the Association to secure proper and necessary veterinary legislation. It was moved and carried that the bylaws be suspended and the above gentlemen elected honorary members of the Veterinary Medical Association of New Jersey.

Minneapolis Party Committee. (Motion by Dr. Lowe.)

"It is fresh in our minds how, only last September, the representative veterinarians of America journeyed from far and near to Atlantic City, upon invitation of the Veterinary Medical Association of New Jersey, to attend the international veterinary convention held at this mecca by the sea.

"A cordial and hearty invitation is now extended by the veterinarians of Minnesota to the veterinarians of New Jersey to visit them on the occasion of the forthcoming annual meeting of the American Veterinary Medical Association at Minneapolis, September 2d, 3d, and 4th. The wives and families of members are included in this invitation. The social features of the annual meetings of the American Veterinary Medical Association are becoming greater and greater every year.

"Specialists in every phase of veterinary science, as well as the general practitioner, will find much at this meeting of value and interest to them. In fact, no progressive up-to-date practitioner can afford not to attend this great veterinary meeting in September. Special railroad rates will be allowed. Let us, with the neighboring States, form an Eastern party and charter a car. I move, Mr. President, that a Minneapolis Party Committee be appointed, and that this committee be authorized to form a Minneapolis party which shall include veterinarians of neighboring States who may desire to join the party, and if a sufficient number pledge themselves to join the party to warrant it, to make arrangements and charter a special car."

The motion was carried, and the following were appointed a committee: Drs. T. E. Smith, of Jersey City, James M. Mecray, of Maple Shade, and G. F. Harker, of Trenton.

This committee was able to report before the meeting adjourned that a rate of $53.35 for the round trip, New York to Minneapolis and return, had been quoted to them by one of the transportation lines, and that the above amount would include accommodations in the sleeping-car, providing eighteen would attend.

The enactment of the new State law made necessary a change in the Constitution, and accordingly an amendment was proposed and came up for first reading. This amendment provides that candidates for membership entering the profession on or after the first Monday in May, 1902, must be licensed by the State Board of Veterinary Medical Examiners and be registered in conformity with the provisions of chapter xviii., Laws of 1902.

Hon. S. B. Ketcham addressed the members on the growing need of well-educated and qualified veterinarians, and urged that the efforts of the Association to secure an educated and competent line of practitioners be continued in the future as it had been in the past.

Recognition of the veterinary profession in the military service was discussed, and the President urged that action be taken toward having it fittingly recognized in rank and title. The Secretary was instructed to communicate with the military officials at Trenton, calling attention to this condition.

At 1.30 P.M. adjournment was made for dinner, and about fifty members gathered about the board in Stetter's dining hall. At the conclusion of the dinner Dr. T. B. Rogers, on behalf of the fellow-members, presented Dr. Lowe with a gift of dinner-table silver. In making the presentation, Dr. Rogers said in part: "Dr. Lowe, you found us a scattered profession; you have bound us together. You found us without the pale of the law; you have placed a protecting arm around us. In behalf of the profession you have united, I have great pleasure in offering you this little token of our regard."

At the afternoon session Dr. James T. McDonough's paper, entitled "The Horse's Foot," was discussed at length. Dr. McDonough proved his statements by a practical demonstration, and answered all objections in a clean-cut manner which strengthened the general impression that he is an authority upon lameness and shoeing.

Owing to the lateness of the hour, Dr. James M. Mecray's paper upon "Some of the Necessary Qualifications for Producing Wholesome and Clean Milk" was not read, it being voted that the paper be presented by Dr. Mecray at the next meeting.

A ballot was taken to decide upon the place of the next meeting. Some favored Lakewood and others Jersey City, but the majority of the ballots were cast for Trenton, and later the vote was made unanimous that the next meeting be held at Trenton on the second Thursday in January, 1903.

At 4 P.M. the meeting was adjourned to the Newark City Hospital where Dr. Werner Runge, veterinarian of the Newark Board of Health, gave a demonstration of the methods of producing antitoxin serums, and Dr. T. B. Rogers performed three neurectomy operations. A vote of thanks was extended to Dr. Runge, Dr. Rogers, and the hospital management for their kindness in making the clinic such a successful feature of the meeting, and the members departed for their homes well satisfied that the day had been a profitable one.

GEORGE W. POPE,
Secretary,

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

Drs. W. J. Reagan, M. A. Pierce, Alexander Machan, David Machan, T. J. Cooper, Harry K. Berry, and William Herbert Lowe, all of Paterson; Dr. George W. Pope, of Athenia; Drs. A. P. Lubach and J. Payne Lowe, of Passaic, met at Dr. William Herbert Lowe's office, corner of Paterson and Van Houten streets, Paterson, N. J., at 8 P.M., on Monday evening, July 7, 1902, in response to a call for a meeting of the veterinarians of Passaic County for the purpose of organizing a Passaic County Veterinary Medical Association.

Dr. William Herbert Lowe called the meeting to order at 8.30 P.M., stated the object of the meeting, and briefly outlined the advantages and benefits of a county society. It was moved and carried that a county organization be formed, and that a President, First Vice-President, Second Vice-President, Secretary, and Treasurer be elected. The election resulted as follows: President, Dr. William Herbert Lowe; First Vice-President, Dr. David Machan; Second Vice-President, Dr. T. J. Cooper; Secretary, Dr. Alexander Machan; Treasurer, Dr. M. A. Pierce.

It was regularly moved and carried that an Executive Committee of five be appointed by the Chair. The Chair appointed on such committee Dr. George W. Pope, Chairman; Dr. Harry K. Berry, Dr. Anthony P. Lubach, Dr. William J. Reagan, Dr. J. Payne Lowe.

Dr. David Machan moved that the next meeting be held July 14th, and that the County Association meet monthly thereafter; that the regular monthly meetings be held on the second Monday evening of each month. Carried.

On motion of Dr. Alexander Machan, the meeting adjourned to meet Monday evening, July 14th, at the same place and hour.

An adjourned meeting of the Passaic County Veterinary Medical Association was held at Dr. Lowe's office, Paterson, N. J., on Monday evening, July 14, 1902.

President Lowe called the meeting to order at 8.30 o'clock

Dr. David Machan was requested to act as Secretary in the absence of his brother. The following practitioners of Passaic County answered to their names:

Dr. Harry K. Berry, Paterson; T. J. Cooper, Paterson; John H. De Graw, Paterson; William H. H. Doty, Paterson; William C. Ferguson, Paterson; M. A. Pierce, Paterson; George W. Pope, Athenia; William Herbert Lowe, Paterson; J. Payne Lowe, Passaic; A. P. Laubach, Passaic; David Machan, Paterson; William J. Reagan, Paterson.

Dr. Fredericks, of Delawanna, telephoned that he had been detained and could not reach the meeting in time, and requested the President to announce to the meeting that he would stand by whatever the majority did at the meeting.

Dr. Berry stated that he had received a letter from Dr. Brooks (who is away on a vacation), and that he expressed himself as heartily in favor of the movement.

The President reported that the Veterinary Medical Association of New Jersey, at its semi-annual meeting in Newark, on the 10th instant, had passed resolutions officially recognizing the local organization as the Passaic County Veterinary Medical Association, duly constituted as such in full affiliation with the State Association. The State Association congratulated the veterinarians of Passaic County on starting the movement and on being the first to organize a County Association in the State, and expressed the hope that the practitioners of other counties, whenever and as the number of veterinarians would warrant it, would form county associations in their respective counties.

Dr. Reagan moved that the Chair appoint a Committee on Constitution, By-laws, and Code of Ethics, which was carried.

The Chair appointed on such committee Dr. Ferguson, Chairman; Dr. Doty, Dr. Reagan.

Dr. Doty moved that the Chair appoint a special committee to prepare and present a table of fees and rates of charges for professional services, on similar lines with the table of fees of the Medical Society of New Jersey, for the government of the members of this Association. Carried.

The Chair appointed on such committee Dr. J. Payne Lowe, Chairman; Dr. Fredericks, Dr. De Graw.

Dr. Cooper moved that the matter of making a black list of "dead beats" be taken up at the next meeting. Carried.

Violations of the provisions of the new veterinary law (chapter xviii., Laws of 1902) were reported; and as the said enactment prohibits all persons not registered before the first Monday in May, 1902, from entering upon or continuing the practice of veterinary medicine, surgery, or dentistry, in any of their branches, in the State of New Jersey without being licensed by the State Board of Veterinary Medical Examiners, and registered at the county clerk's office, in conformity with the provisions of the act it was decided to procure evidence of violations in this county for the purpose of prosecuting offenders. The Association decided to furnish evidence and otherwise aid the State Board of Veterinary Medical Examiners in convicting persons guilty of violating any of the provisions of chapter xviii. Laws of 1902.

It was moved and carried that Dr. J. Payne Lowe be requested to prepare and present a paper on "Veterinary Ethics" at the September meeting of the Association (September 8, 1902).

On motion, the meeting adjourned to meet at the next regular meeting night (Monday, August 11), at the same time and place.

This is to certify that we, the subscribers, practitioners of veterinary medicine, surgery, and dentistry, of the County of Passaic, State of New Jersey, upon the invitation of Dr. William Herbert Lowe, met at his office, corner of Paterson and Van Houten streets, Paterson, N. J., on Monday evening, July 7, 1902, and organized a Passaic County Veterinary Medical Association, and that it is the intention and purpose of this organization to be in affiliation with the Veterinary Medical Association of New Jersey, incorporated April 15, 1885, under an Act of the Legislature for the promotion of veterinary science and art. It is hereby resolved that this Society shall be to the veterinary profession of Passaic County what the Veterinary Medical Association of New Jersey is to the veterinary profession of the State.

We do hereby further pledge ourselves to do all in our power as individuals and as members of this organization to advance and promote the common interests of the profession in this county.

WILLIAM HERBERT LOWE,
DAVID MACHAN,
T. J. COOPER,
ALEXANDER MACHAN,
M. A. PIERCE,
GEORGE W. POPE,
HARRY K. BERRY,
ANTHONY P. LUBACH,
WILLIAM J. REAGAN,
J. PAYNE LOWE.

Signed July 14, 1902.
W. H. H. DOTY,
WILLIAM C. FERGUSON,
JOHN H. DE GRAW.

WILLIAM HERBERT LOWE,
President.
DAVID MACHAN,
Secretary.

THE regular monthly meeting of the Passaic County Veterinary Medical Association was called to order by President William Herbert Lowe at 8.30 P.M., August 11, 1902, when Dr. David Machan was chosen Secretary *pro tem.*

The following members answered to their names on roll-call: Drs. William J. Reagan, David Machan, Harry J. Berry, William H. H. Doty, William C. Ferguson, T. J. Cooper, M. A. Pierce, John H. De Graw, William H. Lowe, Jr., and William Herbert Lowe, of Paterson; J. Payne Lowe and R O. Hasbrouck, of Passaic; George W. Pope, of Athenia; William J. Fredericks, of Delawanna.

A telegram was read from Dr. William C. Berry, of Bloomingdale, expressing his inability to be present.

The minutes of the last meeting were read and approved.

The President called for the report of the Committee on By-laws and Code of Ethics. Drs. Ferguson and Reagan, of the committee, reported that the By-laws and Code were in course of preparation, but not yet completed, when, upon a motion made by Dr. Hasbrouck, the adoption of the same was laid over until the next meeting.

Dr. J. Payne Lowe, chairman of the Committee on Schedule of Fees, presented a carefully prepared report, signed by all members of the committee—Drs. J. Payne Lowe, William J. Fredericks, and John H. De Graw—which, upon motion of Dr. Reagan, was fully discussed, and the schedule amended, and adopted as amended, by a unanimous vote, and the schedule was ordered printed and a copy furnished each member, all agreeing to govern themselves by the said schedule. The report and schedule as finally adopted follows:

Mr. President and Gentlemen: The circumstances under which veterinary services are rendered vary greatly, and while we have made up and will submit a schedule of rates to be charged, we believe practitioners should use discretionary power in charging. Some men can command larger fees than others; men of reputation and experience more than young veterinarians. We should adopt no radical tariff of fees that will make us or our services unpopular with the public, or that will have a tendency to cause them to do without our services and to resort to empirical measures.

Our services are sought for, as a rule, for commercial reasons. We not infrequently treat very valuable animals. As a rule, however, most of us are called upon to save the life of a $200 horse; to restore to usefulness a $75 lame horse; to assist a $50 or $60 cow at the time of parturition. True, quite a few animals are treated where this does not obtain. The family horse, on account of his docile qualities, is often treated to an extent not in keeping with his market value; or occasionally it is an old animal that has been pensioned off until of necessity he is humanely destroyed; or, again, in canine practice it is often a matter of sentiment. So you see in practice it is not what we should receive for some fancy operation skilfully performed, but we must keep within practical bounds; in other words, the value of the animal treated must be considered. In cases covering a long period of time or terminating unfavorably it is not only fair but it is policy sometimes to make concessions. The volume of work we do for a client should modify the fees; or, again, poor people should be charged leniently or in extreme cases not charged, while those able to pay should be charged the full fee.

Your committee does not believe that there is any member of the Passaic County Veterinary Medical Association who would lower his dignity or undermine his brother practitioner by under-charging for his professional services, and the schedule of fees we have made up is merely a guide to fellow-members as to what we believe to be proper charges, and we respectfully submit it for your consideration.

Schedule of Fees—General Practice.

Single visit in the city, $2.

Ordinary visits within the city, $1 to $2.

Ordinary visits outside the limits of the city, $2.50 and mileage.

Mileage at the rate per mile (according to the number of miles), 25 cents to 50 cents.

Advice given each additional animal at same visit, 50 cents to $1 extra.

Visits after 9 P.M. or before 7 A.M., or in haste, or in extraordinary circumstances, to be charged double.

Remaining in attendance all night, $10 and upward.

Detention in addition to visit, per hour, $1 to $2.

Surgical Practice.

Ordinarily, visits the same as in general practice, or double if surgical dressings, etc., are applied.

Minor operations, $1 and upward.

Dressing abrasions, sores, etc., $1 and upward.

Suturing and dressing wounds (trifling in character), $2 and upward.

Blisters applied, $2 and upward.

Insertion setons, $2 to $3.

Phlebotomy (jugular), $2 to $3.

Major operations, $5 and $10 and upward.

Suturing and dressing wounds (serious in character), $5 and upward.

Neurectomies, plantar (high or low), $10 per foot and upward; median, $15 per foot and upward; tibial, peroneal, $15 to $25.

Operations for the removal of champignon, $10 and upward.

Amputation of the penis, $10 and upward.

Tracheotomy, $5 and upward.

Use of the actual cautery, $5 and upward.

Fractures (setting of fractured limbs, etc.), $2 and upward.

Castration of the male, single horse (normal), $10; two horses (normal), $15; three horses (normal), $20; four horses (normal), $25; cryptorchid, $25; bull, $3 to $5; dogs and goats, $2 and upward; cat, $1 and upward; pigs (single), $1 and upward; each additional pig, 50 cents.

Ovariotomy, mare, $25; cow, $10; bitch or cat, $5; sow, $3; each additional animal, $1.

Obstetrical practice, delivering fœtus, dystokia cases, by natural passages: mare, $10; cow, $5; smaller animals, $2 and upward.

Cæsarean operation: mare or cow, $10 and upward; smaller animals, $5.

Embryotomy: mare or cow, $10 and upward.

Removal of placenta: mare or cow, $3 and upward.

Replacing everted uterus: mare, $5 and upward; cow, $3 and upward.

Uterine douches, $2.

Dental Operations.

Filing molar teeth (under ordinary circumstances): one horse, $2; two horses, $4; in large stables after the first two horses, $1 per head.

Cutting elongated molars, $3 to $5.

Cutting incisors, $3.

Extracting wolf teeth, 50 cents each.

Extraction of temporary incisors, $2.

Extraction of molars, $5 and upward.

Trephining sinuses, $10 and upward.

Miscellaneous.

Consultation in all cases, $5 and upward.

Examination of horses for soundness, $5 each.

Post-mortem examinations, $5 each.

Chemical, microscopical, and bacteriological examination of urine, milk, etc., $5 and upward.

Chemical analysis in cases of poisoning, $5 and upward.

Opinion as an expert, $5 and upward.

Professional certificates, $2 and upward.

Assistant surgeon is entitled to a fee equal to one-half of that charged by the surgeon.

Office Practice.

Advice, $1.

Advice by letter or by telephone, $1 and upward.

Medicines.

Liniments, lotions, solutions, mixtures, etc., 50 cents to $1.

Ointments, 50 cents to $1.

Powders, per package, 50 cents to $1.

Signed by the committee:

J. PAYNE LOWE, *Chairman*,
WILLIAM J. FREDERICKS,
JOHN H. DE GRAW.

On motion by Dr. Hasbrouck, seconded by Dr. Pierce, the date of the regular monthly meetings was changed from the second Monday evening of the month to the first Tuesday evening of each month, except in the month of September, when the regular meeting shall be held on the third Tuesday evening.

President Lowe stated that the *American Veterinary Review*, in the August number, had given three pages of its space to a report of the organization and the proceedings of the Passaic County Veterinary Medical Association, and an editoral that would make every veterinarian in Passaic County feel proud that be belonged to the local organization.

The President called the attention of the members to the fact that the State Association had at its last meeting appointed a Minneapolis Party Committee, of which Dr. T. E. Smith, 309 Barrow Street, Jersey City, is chairman, and that the County Association should be represented at the meeting of the American Veterinary Medical Association in Minneapolis; and that any member or members that could go were invited to join the party going from this State on Saturday, August 30th. Dr. Cooper asked the President to represent the local organization, and, upon his motion, Dr. Lowe was elected the official delegate to the Minneapolis meeting.

It was also the sense of the meeting that the County Association should be represented at the forthcoming annual meeting of the New York State Veterinary Medical Society, to be held in Brooklyn, September 9th and 10th. Dr. Pierce moved that the Chair appoint delegates to the said meeting. The Chair stated that he would appoint as such delegates such members as expected to be able to attend the meeting. After the conference the Chair appointed delegates as follows: Drs. J. Payne Lowe, William H. Lowe, Jr., and William C. Ferguson.

The President requested practitioners who have students with them to advise them that the State Board of Veterinary Medical Examiners, under the law, would only recognize diplomas from colleges with a curriculum of at least three years.

On motion, meeting adjourned.

WILLIAM HERBERT LOWE,
President.
DAVID MACHAN,
Secretary *pro tem.*

THE ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION.

THIS Association met in semi-annual session at the Brunswick Hotel, Decatur, August 14 and 15, 1902. The meeting was called to order by the President, Dr. V. G. Hunt, of Arcola, Ill. The roll-call was responded to by a fair number of the members.

President Hunt's address was delivered in a masterly manner, characteristic only of himself, and was as follows:

"GENTLEMEN: As we meet to-day we are forcibly reminded of the rapid advancement in every department of the arts and sciences. When we look back a quarter of a century ago and see where the veterinarian stood, the meagre supply of veterinary literature at his command, the impotency of the healing art, it is not to be wondered at that he should make some fearful mistakes. The only wonder is that he did as well as he did. In surgery no antiseptic precautions were thought of. Still, many of our patients recovered. One fact yet remains to be told. Very few of those bold and difficult operations were not attempted that to-day are everyday occurrences. Surgery has outstripped all the other sciences, has attained a degree of perfection never dreamed of a half century ago. Doubtless if we could brush aside the veil that covers the future we would still see greater surprises in store than ever before. The live-stock interest is too great to leave a stone unturned to combat every infectious and contagious disease that has already secured a foothold in our own State.

"We are well aware that an alarmist is not looked upon with any degree of composure. Still, this does not relieve the veterinarian of his responsibilities to his patrons. The time was when a lone horseman at breakneck speed warned the people of Johnstown of impending danger, losing his own life to save that ill-fated city; they heeded not the warning, and the city was destroyed.

"Tuberculosis has come to stay. It has stealthily invaded every part of our State, slowly but surely doing its work; and man can and does contract this disease from the bovines. Is it not worth while to give this disease our earnest consideration? Laws should be passed to restrict its ravages; ample appropriations made for the experimental stations, with competent men at the helm. How important it is for politics to be eliminated from these appointments—not a 'good, clever fellow,' which usually means a d—d fool—but conscientious men of education, coupled with experience; then we may expect results. How often has the worthy veterinarian skulked off in shame when a State Veterinarian has been called upon, and when confronted with a contagious or infectious disease was as dumb as an oyster. Let us hope we have seen the last of this class of gentry. If there is anything that requires keen perception, with a little common honesty, it is the position of State Veterinarian. It must be admitted the life of a veterinarian is an arduous one, above all the other vocations in life, for the public look with no degree of composure upon his shortcomings, while the human practitioner can attribute a death to 'heart failure,' an almost meaningless term, which is received in good faith.

"Our societies should sound the timely warning from the housetops without fear, favor, or affection. He should devote his whole life to the upbuilding of his self-chosen profession. As the practice of medicine is an incomplete science, and will likely always remain so, it requires a practitioner to be a diligent student while attending his everyday practice. Hence the necessity for our society. Life is too short to gain that perfection required unaided by the society. The man who gets what he has learned along the journey of life and lets it be buried with him is not a benefactor of his race. Let us encourage every worthy investigator. Be slow in our criticisms. 'With charity for all, with malice toward none,' is a commendable virtue. I thank you for your courtesy and valuable aid."

The minutes of the previous meeting were then read and approved by the Association.

President Hunt next appointed S. H. Swain, C. A. Hurlbutt, and John Osborne as a committee to draft resolutions of condolence on the death of Dr. L. C. Pray, of Minonk, Ill., a charter member of the Association, and directed that a copy thereof be sent to the widow of the deceased, and also one to be spread upon the minutes of this Association. The resolutions on the death of Dr. L. C. Pray follow:

WHEREAS, By the death of Dr. L. C. Pray the Association has been deprived of one of its brightest and most faithful workers; therefore, be it

Resolved, That in the late Dr. L. C. Pray we recognize a man of learning and character and an able practitioner of his profession; that we shall remember him as a man of noble impulses, of genuine and kindly sympathy with his fellow-men, of a warm heart and honest mind;

Resolved, That we tender our sympathy and condolence to the bereaved wife and family of the deceased in the hour of their affliction;

Resolved further, That a copy of these resolutions be sent to the family of the deceased, and a copy be spread upon the minutes of this meeting.

S. H. SWAIN,
C. H. HURLBUTT,
JOHN OSBORNE,
Committee.

The following papers were read: "Lymphangitis," by Dr. N. P. Whitmore, of Gardner, was of much interest. "Dermatorrhagia" was a subject of great interest, and Dr. C. A. Hurlbutt, of Stonington, read a report of a case in his practice which brought forth a very instructive discussion upon the subject. Dr. W. J. Martin, of Kankakee, next read a most able and instructive paper on "Bone Spavin: Its Etiology and Treatment," which paper was read before the American Veterinary Medical Association and published in the proceedings of that meeting. A very excellent paper was read by Dr. J. W. Marsh, of Illiopolis, on the subject of "Erysipelas," which brought out some very interesting and instructive points with reference to this disease. He was responded to by Drs. J. M. Reed and I. M. Luzader. The subject of "Nephritis" was well calculated to bring forth some very interesting discussions, and an excellent paper on the subject was read by Dr. J. M. Reed, of Mattoon, responded to by Dr. D. K. Gooddale. (Will appear later in the JOURNAL.)

The second day's session was called to order by President Hunt. Much discussion was indulged in on the subject of eligibility of members, and resulted in the carrying of a motion, proposed by Dr. S. H. Swain, to empower the Committee on Programme to draft and have printed a circular letter to be sent out to the profession at large in the State.

Dr. S. H. Swain next read a paper on the subject of "Ectropion and Entropion," which was responded to by Dr. R. W. Brathwaite. The subject of "Eczema" was next on the programme, by Dr. V. G. Hunt, of Arcola, who read an instructive paper, which was responded to by Drs. R. W. Brathwaite and C. A. Hurlbutt. "Tetanus," by Dr. R. W. Brathwaite, of Champaign, was a very complete and instructive paper, which created considerable interesting discussion. Dr. W. A. Swain then gave an account of "Hysteria," which was responded to by Dr. W. J. Martin.

Among the visitors present was Dr. Tiffany, of Springfield, State Veterinarian.

On motion, the date and location of the next meeting was fixed for Wednesday and Thursday, January 14 and 15, 1903, at the St. Nicholas Hotel, Decatur, Ill.

W. A. SWAIN,
Secretary.

GENESEE VALLEY VETERINARY MEDICAL ASSOCIATION.

THE semi-annual meeting of the Genesee Valley Veterinary Medical Association was held at Rochester, July 17, 1902.

President O. B. French presided. There were present Dr. J. H. Taylor, Henrietta; P. I. Johnston, Wilmington; J. E. Smith, Webster; L. J. Palmer, Sonyea; L. R. Webber, Rochester; W. E. Stocking, Medina; D. P. Webster, Hilton; N. N. Leffler, Geneseo; Carl Webber, Rochester; W. G. Dodd, Canandaigua; A. George Tegg, Rochester.

The morning session included the routine business of the Association. Adjourned to meet at the veterinary hospital of Dr. L. R. Webber, on Andrew Street, at 1.30 P.M., at which place a very interesting clinic was held, resulting from the successful efforts of Dr. J. H. Taylor, Chairman of the Clinic Committee. A great number of operations were performed and witnessed by members of the Association.

W. E. STOCKING,
Secretary.

NIAGARA AND ORLEANS COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of the Niagara and Orleans Counties Veterinary Medical Association was held in the parlors of the Niagara House, Lockport, N. Y., August 26, 1902. The President, Dr. W. E. Stocking, called the meeting to order.

The roll-call found the meeting well attended, all parts of the counties being represented. The regular order of business was dispensed with, and a lively discussion followed on the subject of "Ringbone and Purpura Hemorrhagica," in which all participated.

The following officers were elected: President, M. D. Williams; Vice-President, James Martin; Secretary-Treasurer, Anderson Crowforth, Board of Censors: W. E. Stocking, G. C. Kesler, N. Hoffman, John O. Moore, John T. Liddle, H. S. Beebe, Wm. R. Hunter.

A. Crowforth,
Secretary.

COMMENCEMENT EXERCISES.

NEW YORK—AMERICAN VETERINARY COLLEGE.

The annual commencement exercises of this school were held in conjunction with the School of Law, the University and Bellevue Hospital Medical College, the Graduate School, the School of Pedagogy, the School of Commerce, Accounts and Finance (all departments of New York University), on Thursday evening, June 5th, at the Metropolitan Opera House. The exercises attending the closing of the University and the University and College of Applied Sciences had been proceeding at University Heights since May 31st. The Opera House was packed, and it was estimated that a thousand were unable to obtain entrance.

The following passed satisfactory examinations before the Faculty, and all those who had received the requisite counts before the Regents received the diploma of the college. The remainder will be granted parchments when their preliminary counts are obtained: Oscar Barnett, Jr., Newark, N. J.; Louis Janeway Belloff, New Brunswick, N. J.; George A. Hazel, Brooklyn, N. Y.; Robert Anderson McAuslin, Brooklyn, N. Y.; Warren J. Palmer, New York City; James Lee Shorey, V.S., Hoosick Falls, N. Y.; James L. Wells, Good Ground, L. I., and Roland T. King, Brooklyn, N. Y. Dr. Joseph L. Serling, New York, who passed the Faculty last year and received the requisite counts since, was awarded his diploma.

Robert A. McAuslin passed the best general examination, and received the Faculty gold medal.

Warren J. Palmer passed the second best general examination, and was awarded the Alumni prize of standard veterinary works.

Dr. Palmer was also the recipient of the practical prize of a case of surgical instruments, for the best practical examination passed before a board of veterinarians appointed by the faculty.

AMONG THE COLLEGES.

THE annual announcement of the Ontario Veterinary College, session 1902–3 has been received. The session will commence this year on October 15th. The only changes noted are the addition to the staff of professors the name of W. J. R. Fowler, V.S., as assistant demonstrator of anatomy, and to the text-books used that of *Materia Medica*, by Winslow.

The announcement of the opening of a third college in Kansas City, Mo., under the name of the University Veterinary College was a great surprise to the profession. Inasmuch as one three-year college and one two-year institution already existed in that city, neither of which had the support or strength it should have in these days of veterinary progress and advancement, one can hardly conjecture how a third institution can hope for such support as will insure its integrity and worth to the true growth of the profession. On the contrary, we fear it is purely a rival institution, and will tend only to injure the cause of veterinary education. So long as State governments will charter such institutions under the corporation laws, true education must suffer until those laws governing educational institutions shall be most severely changed and rigidly enforced.

BOOK NEWS.

EVERY veterinarian of Pennsylvania should obtain through his Representative a copy of *Part I., of the Report of the Department of Agriculture* for 1901. It is replete with matters of great interest and importance to the profession of this country, and especially to Pennsylvania's. Among some of the matters recorded and discussed are the Act for Prevention of Spreading of Diseases from Carcasses of Diseased Animals; the Period of Gestation of Domestic Animals, Study and Experiments of Tubercle Bacillus, Anthrax and Black Quarter, Cattle Food and Composition of Feeding Stuffs, Analysis of Condimental Foods and Study of Cultures of Various Diseases Producing Micro-organisms.

This book also contains an article on the Division of Veterinary Science, with discussions; glanders, hog cholera, rabies and tuberculosis; remarks on the question of milk supplies, with statistics of the milk supplied, and the report of the State veterinarians.

NOTES.

Recently a peasant woman at Ostergaard, in Silesia, had occasion to leave her house to do some work outside. When she returned her eight-weeks-old baby, which had been lying on the floor, had disappeared. All the rooms in the house were searched, but to no purpose. Eventually, one of the neighbors discovered the child in the kennel of a huge St. Bernard dog, the animal affectionately licking the infant with its tongue. The St. Bernard, whose litter of puppies had been taken away, had carried the child into its kennel and was treating it with all the affection of a human being.

For some time the police of Ghent have been using trained dogs to aid them, and the plan has been attended with much success. The use of dogs has enabled the municipality to get along with fewer policemen than otherwise would be needed, and a dog costs but six cents a day to feed. The training of the animal is found far less troublesome than was supposed, but care has to be taken in selecting dogs with a suitable disposition. They are especially employed in searching dark, out-of-the-way places difficult to reach, where dangerous characters may be concealed. Their leaping powers in scaling walls are found of great use. They are trained to pursue persons taking to the water to escape and those who run away.

A drove of ten steers that were fattened on a farm in Providence township have been sold at nine cents per pound, the highest price ever paid in Eastern Pennsylvania for steers. The average weight of the steers was 1600 pounds each. The steers were bought ten months ago, when they weighed 900 pounds each, and the increase in weight is considered remarkable.

Trained cats are the latest fad of French society women. Fashion decrees that the animal must be "educated" entirely by its owner, and several of the best-known women in Parisian society are giving an hour a day to training their pets.

An order has been issued by the police department of Berlin providing for the shooting of all cats found at large in the city, and a fine for any owner of a cat who allows the animal to wander from his home.

A sanitary milk-supply company, with a capital of $50,000, has been formed to insure the people of Reading a healthful and clean milk-supply.

Cutaneous parasites and naphthalin: Ebmayer has found the use of naphthalin in cases of larvæ of the œstridæ most useful. The naphthalin is dissolved in warm alcohol and rubbed in with olive oil. A very small quantity suffices for the whole surface of a horse's skin. Vaseline and naphthalin, 1 to 10, is very useful with lice in cattle.

Dr. Joseph J. Smith, of Albany, Oregon, reports four cases of dropsy of the amnion during the month of February. Two of the colts are alive and doing well, and all of the mares made a good recovery. Creolin as an antiseptic uterine douche was used with the internal administration of stimulants.

The docking of horses has been placed on the Michigan criminal calendar. Moreover, parties bringing docked horses into the State are required to register them with the county clerk.

The veterinary periodical formerly published under the name of the *Michigan Veterinary Review*, and which for a time ceased publication, has reappeared under the name of the *International Veterinary Review*, and has as collaborators Drs. L. L. Conkey, W. A. McLean, W. E. A. Wyman, B. O. Johnson, P. E. Heseltine, and George Hare, all veterinarians. Its typographical appearance has been very much improved since its re-issue.

Prof. Otto Alex. Siedamgrotzky, one of the instructors in the Dresden Veterinary College, died at Wiesbaden, Germany, on June 20th. Dr. Siedamgrotzky was a very frequent contributor to foreign veterinary journalism for a great many years.

Elephant for farm work: James Cahill, of Virginia, is probably the only person in the United States who has in regular use upon his farm an elephant which is used for farm work. With the swaying beast hitched up to a plough he can turn more ground than any of his neighbors with a team of horses, and when it comes to hauling logs the elephant will walk away with ease with logs which the best teams of his neighbors cannot move. The elephant eats little more than a horse, and does many times the work of one, is gentle and docile and little trouble, and Mr. Cahill is more than pleased with his experiment. Mr. Cahill bought the elephant from a stranded circus proprietor.

The Zenner Disinfectant Co., of Detroit, Mich., are issuing a series of booklets containing the description of many of the prize animals of the most important fairs in the Western States. These descriptions are many of them by students and those connected with the agricultural colleges in the West, and are a source of information as to the best merits of the various types of animals. Copies of these booklets may be had by addressing the company at Detroit, Mich.

At Altoona, Penna., several very valuable thoroughbred Holstein cows were lost through eating dynamite which had rolled on the grass from a quarryman's shanty in the pasture field.

The passing out of existence of the old and well-known instrument firm of Messrs. John Reynders & Co., of New York, is an unexpected change. It is well for the profession's convenience that we are not to lose its advantage, inasmuch as Mr. Theodore F. Krey, who formerly managed this department, will continue this part of their business at 141 W. 54th Street, New York City.

Dr. Berg, Secretary of the National Museum of Buenos Ayres, died in January of this year. He was specially active in promoting the interests of this library.

PERSONALS.

Dr. and Mrs. W. H. Hoskins of the JOURNAL made an extended trip in July through the West, visiting Helena, Montana, Yellowstone Park, Minneapolis, and St. Paul, Minnesota, Chicago, Ill., and other points.

Dr. J. P. Foster, formerly of Selby, South Dakota, has located at Beresford, South Dakota.

Dr. O. A. Stingley, of Kansas City, Missouri, has been appointed an assistant inspector in the Bureau of Animal Industry and ordered to Chicago.

Dr. Charles Ellis, who maintains a thoroughly up-to-date dog hospital in St. Louis, is having a dog ambulance constructed.

Drs. W. L. Rhoads and James Marshall, two of Eastern Pennsylvania's veterinarians, are members of the committee directing the Road Drivers' parade in Philadelphia in October.

Dr. Emil Knight, of Rochester, New York, is a great admirer and breeder of the English pointer dog. He only breeds from those bred in the blue.

Dr. D. B. Keeler, of Salem, Oregon, holds the position of Stock Inspector for Marion County.

Dr. Thomas Trinder, of Charlotte, N. C., will locate at Memphis, Tenn., after October 1st.

Dr. A. G. Kern, of Knoxville, Tenn., who graduated at the Veterinary Department, University of Pennsylvania, and afterward pursued a course in human medicine, is now attached to the staff of the German Hospital, Philadelphia, Pa.

Dr. A. L. Wood, formerly of Prairie City, Iowa, has located at Hampton, Iowa.

Dr. D. F. Luckey, State Veterinarian of Missouri, is a staunch advocate of legislation to regulate the practice of veterinary science in that State, in order that the stock owners may have the protection and assistance of properly qualified veterinarians.

Dr. Robert J. Morrison, of the Bureau of Animal Industry, has been transferred from East St. Louis to Chicago, Illinois.

Dr. Newton Lazarus, of Nazareth, Pa., has been afflicted with blindness and is bedfast. His practice has been sold to Dr. George L. Nicholas, a graduate of the Veterinary Department of the University of Pennsylvania, class of 1902.

Dr. W. Harry Lynch, graduate of the Kansas City Veterinary College, has located in Manchester, N. H. Dr. Lynch recently passed the examination of the New Hampshire State Board of Veterinary Medical Examiners.

Dr. Otto Noack, of Reading, Penna., President of the Schuylkill Valley Veterinary Association, has just undergone a serious cranial operation in Philadelphia.

Dr. N. B. Smith, of Kansas City, Kansas, is now located at Billings, Montana.

Dr. Alex. Glass, of Philadelphia, Pa., spent the month of July yachting. As a member of the Corinthian Yacht Club he was much interested in their yearly cruise in the waters of Long Island Sound.

Dr. James M. Mecray, of Maple Shade, N. J., is a frequent vistor to Atlantic City, and is a great lover of the surf.

Dr. W. H. Dalrymple's, of Baton Rouge, La., article in the *New Orleans Medical and Surgical Journal* on "The Value of Co-operation in the Sanitary Control of Our Periodic Epizootics of Anthrax," is reproduced in this number.

Dr. J. W. Vansant, graduate of the Veterinary Department of the University of Pennsylvania, class of 1902, has located at Fox Chase, Pa.

Dr. H. D. Martein, of Philadelphia, Pa., is sojourning at Ocean City, New Jersey, after a severe illness from poisoning, which confined him to the Chester Hospital for some time. His many friends will be glad to learn of his convalescence.

Dr. Harry Nunn, of Portland, Oregon, has removed to McMinnville, the same State. Dr. Nunn was formerly connected with the United States army.

Dr. J. C. Shaub, of Lancaster, Pa., has just met with the sad loss of his daughter, aged twenty-seven years, from blood poisoning following an operation.

Dr. James C. Corlies, of Newark, New Jersey, recently removed a twenty-five-cent piece of the date of 1898 from a horse's shoulder. The parts bore no evidence of any old scar by which it might have entered.

Dr. Levi Johnson, a graduate of the Veterinary Department of the University of Pennsylvania, is proprietor of the Oregon Veterinary Hospital.

Dr. A. A. Harmon, of Chelmsford, Mass., has located at Lowell, in the same State.

Dr. F. W. Huntington, of the port of Portland, Maine, holds the highest record for a single shipment of cattle. The vessel was sent forth with 1179 cattle. It required eighteen carloads of hay to provide for their needs in transit.

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THE JOURNAL

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PRESIDENT'S ADDRESS.[1]

BY J. F. WINCHESTER, D.V.S.,
LAWRENCE, MASS.

IT is fitting that I should first express to you my deep sense of appreciation of the compliment and honor you conferred upon me when, by unanimous vote, you elected me to preside over this body. Fully realizing that it is the highest honor that can be bestowed upon an individual member, I assure you that I shall do my best to fulfil the duties of my high office as befits one who has the welfare of the profession very closely at heart.

The present and future success of this Association depends upon the members individually and collectively. We are numerically the largest association of the kind in the world, and it becomes the duty of the members to do their utmost to make the American Veterinary Medical Association the most influential in work and wisdom.

It is now twoscore years since the first gathering of veterinarians was held on this continent That space of time marks an epoch in the life of man when he is ordinarily at the zenith of vigor of mind and body. It is not so with this Association, for its influence will steadily increase, growing grander and more glorious as the years pass by. Its prestige to-day is well shown in that the invitation to hold the meeting in this State was the most cordial one ever extended to it.

The veterinarians of Minnesota are to be congratulated upon having the Governor, the State Board of Health, the Mayor of this city, and the Commercial Club so much interested in our profession as to extend individually to this organization the right-hand of fellowship. In behalf of the American Veterinary Medical Association I now thank the gentlemen representing the State and city governments for the courteous treatment that has been offered us.

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[1] Read at the Thirty-ninth Annual Meeting of the American Veterinary Medical Association.

This Association was organized by about forty veterinarians in 1863, the year following the meeting held in Philadelphia, under the name of the United States Veterinary Medical Association. Since that time the scope of the work has so enlarged that the present name was adopted as indicative of the growth of membership. Through its encouragement and support a veterinary periodical was first published; through its influence the course of study of veterinary medicine in most colleges has been increased to three years, and it is to be hoped that the same influence will cause the few two-year schools that remain to lengthen their period of instruction. There are to-day thirteen colleges graduating veterinarians eligible to membership in this Association, while only five remain that do not comply with our requirements.

As it is my opinion that the requirements of Article I., Chapter VI., of our By-Laws have been instrumental in increasing the period of instruction in many colleges, I offer these suggestions: First, that all alumni from colleges now requiring three years' attendance be eligible for membership in this Association; second, that the graduates from colleges that within two years adopt a three-years' course and otherwise comply with our requirements be eligible to membership.

As there are at the present time only five colleges having at least four veterinarians on their teaching staff that do not require the three-years' course of six months' attendance or more, I trust that the day is not far distant when the term for graduation for all colleges will be extended to four years. If it were a fact that all of our three-year colleges were insisting on like qualifications for matriculation and graduation, with the anticipation of a four years' course in the near future, the confidence of the public would be gained.

This condition of affairs can be brought about by having the trustees of each college appoint delegates with power to act in the matter. The next step in order would be the selection of men of broad and liberal education, who are specialists in the subjects taught, to constitute the faculties of these schools.

This once accomplished, the requirements for matriculation of students in all the colleges being made equal, the results will be that in the near future all cities will have a veterinary health officer acting with the medical officers of health in controlling and preventing diseases; the public will cease to look upon the veterinarians as mere animal physicians and surgeons, and will grant them the privilege of interpreteting and administering laws relating to public health. We should use our moral influence to bring this to pass, that every graduated veterinarian may some time have the prestige due him.

The growth of this Association and interest in it are due to a great extent to its Secretary. His duties are many and arduous, but how few of us have for once stopped to consider them. On his untiring zeal and his ever anticipating the wants of this organization depend the success of our meetings and the interest taken in them.

In looking over the list of Secretaries you will find that, with one exception, our present official has served us the longest; but bear in mind that, with that exception from 1880 to 1888, the duties were very slight compared with those of to-day.

During the first years the membership was limited. Notices of meetings were given in the *Review* and the JOURNAL, and the proceedings of the meetings were not published as at present. The time occupied was one day in September and March, New York City being usually the Mecca in September, and Boston in March. There were but few papers read, the time being principally occupied in changing the By-Laws and discussing contagious pleuropneumonia.

Those of us who were members in the early days little thought that such a change would take place in this Association, for, as I have said, it is to-day the largest numerically in the world. The work having increased to such dimensions, our Secretary should have under his direction as State Secretaries men who are earnest and willing to serve. Before making appointments it would, in my judgment, be desirable to obtain from each man an assurance of his willingness to accept the office and assist in the work which properly belongs to it. Since the duties of the State Secretaries are not defined in our By-Laws, the Secretary should be provided with printed instructions, such as the Executive Committee may recommend, which he may send to the State Secretaries when notifying them of their appointment.

The suggestion has been offered that an effort be made to have the various State Associations elect as members only such as are eligible to membership in this body, and then to have these various organizations endeavor to interest their members, that all may become associated with us. I deem this advisable, as in this way our membership would be increased and our influence greatly extended. Should the State Associations carry out this suggestion, how many new students would the two-year colleges matriculate?

It is now several years since a Prize Committee has been in existence, but I trust that before long we may again see the formation of that committee.

It cannot be said that original work is not being done on this continent. The interesting and valuable papers that are presented not only at our meetings, but also at State Associations, deserve more than a passing notice. Knowing what literary work our members have done without the hope of pecuniary gain, but simply from the desire to aid their profession, would not a prize offered by the Association serve to stimulate for the future those men who have already aided the Association and profession, and at the same time be an incentive to others to interest themselves in such original work? While it is a fact that our profession offers opportunities second to none for the investigator, at the same time are there not a great many of us taking conditions for granted that by the acts of nature resolve themselves without our knowledge of the cause?

In order to gain in wisdom and to benefit the country the name of which we have assumed, what reason can there be why we should neglect to use our influence to induce our members to give to the world the results of their investigations? Let this Association decide on some method, so that it may put its stamp of approval upon the work of its members.

You have caused the formation of a Committee on the Pharmacopœia, the results of their labors to be the official work of this Association, and your President having made a very careful canvas of the membership, to obtain the most eligible men to comprise the committee, there is reason to believe that a body has been gotten together that will do its work thoroughly and reflect credit upon the Association.

The proposition that a committee be formed to formulate a standard of soundness of horses is good. In addition I would suggest that a scale be made by which the excellence of an animal for service may be scored. Ordinarily, the services of a veterinarian at exhibitions have been used in regard to soundness only, and his judgment has not been called for when scoring points of excellence.

The attempt to get a special act of incorporation through Congress, which resulted in failure, was made several years ago. It is now time to take up this question again, and if the consensus of opinion does not favor again trying in Washington it may be well for the Association to apply for incorporation under some State law.

In the past few years the mortality and prevalence of infectious and contagious demic and zootic diseases have diminished. The reason for this is that the causes of the various disorders common to man and animal have been investigated and proven. It is well known that the causes of those diseases communicable to man vary in size from micro-organisms to parasites (if you will allow the comparison), and many of the former do not necessarily belong to the living animal, being found in decaying tissue as well as in storehouses.

Recently the etiology of certain diseases that cause enormous loss in cattle has been demonstrated, and the immunizing of cattle has become a source of wealth to the nation. In this country, so far as I know, those insects which fly at night have not as yet been proven to convey diseases from one animal to another, though they do from man to man; nevertheless, it is known that flies become an active means of contagion among animals.

Tuberculosis, so well known to us all and about which so much controversy has arisen, illustrates, to my mind, the best instance of a malady where hygiene and sanitation are the important factors in its prevention and treatment.

What seems to be the future work of the veterinarian is the prevention of contagious and infectious diseases. As in the past the success which has been attained has been due in a large measure to sanitation, so must we look to that for future success. I would recommend that the Committee on Resolutions draw up an article on the practical value of hygiene. Such a resolution will undoubtedly receive the unqualified approval of the press.

In several of the States important laws have been recently passed which should greatly benefit our profession. I will refer to only one. Within thirty days the veterinarians of New Jersey were fortunate in having a law enacted regulating the practice in that State. This subject will be considered in full by the Committee on Intelligence and Education.

The profession protests against an injustice to a conscientious member on account of the profession, but who is to enter a protest against the veterinarian without personal integrity? There seem to be veterinarians ready and willing to lend themselves to schemes which will further their personal ends. Opportunism seems to be the guide for a great many, but my observation has been that such individuals are successful for awhile only, for in the end those who make use of them turn against them, and not only distrust them, but have not the best opinion of the veterinarian.

These conditions, which are patent to a great many, will, in my judgment, continue to exist if the cause for them is not removed. The lack of a broad education and of self-sacrifice are the evils which this Association should use its influence to eliminate. Morally the remedy is at our door, and a broad, liberal education with self-sacrifice should be strenuously advocated. The beginning must be made when the applicant first raps at the door of our educational institutions, and then continued by having teachers of the required calibre.

A period of instruction covering two, three, or four years cannot offset this evil if the students do not always have before them the example set by broad-minded, self-sacrificing men of culture with whom they are brought in daily contact. Let it be borne in mind that the action of the opportunist is far reaching, and that his seeming opportunity reflects on the profession to such a degree that it will take a long time to correct the wrong done by him.

Throughout the world among the liberal professions there exists a feeling of community and of support. When injustice of any kind strikes one individual member, the entire profession protests, regardless of any other sentiments. They protest against the wrong done, not because of the individual, but on account of the profession of which he is a member. Aside from this professional sentiment, the thought of material support has been overlooked in America by the philanthropists of our profession. It is well manifested by the veterinarians of England and France and by the medical profession of New York State, being expressed by the support and assistance which the members render each other and their families when death or disability overtakes them.

England's National Veterinary Benevolent and Mutual Defence Society has a membership of 250. It was organized to protect members of the veterinary profession against alleged depreciation of animals as a result of sickness, accidents, or opinions honestly expressed in the discharge of their duty; and also to assist such members of the veterinary profession, their widows and orphans, who might prove to be deserving of professional benevolence. The French association numbers 940 veterinarians this year against 359 in 1897. It has a fund of $12,000.

The New York Physicians' Mutual Aid Association, incorporated in 1868, had at the beginning of this year a membership of over 1500, with a permanent fund of $40,000. It gives $1000 to a member's family at his death, and renders assistance in adversity during life. The actual expense per member for 1900 was $18.

Our Association can and ought to make a beginning that will before many years be of assistance and benefit to its members. Deeming this a subject of great importance for the future welfare of the Association, I would suggest that a committee be appointed to report immediately, so that definite action may be taken by the Association at this meeting.

The *American Veterinary Review*—that journal to which our Association a quarter of a century ago gave its support—has steadily grown in influence, and to-day is a factor in the formation of opinions among the members of our profession. At its head to-day is the same man who took the burden of nursing it into life. A few years after the publication of this paper, in 1880, THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES, so favorably known to us all, appeared. In order to succeed in any profession it is essential for us to keep in touch with the advance of the day. The press is the factor we must not overlook; it is the guide that blazes the trail to all professional progress.

In the past a great deal of our knowledge has come to us through the work of foreign schools. Has the veterinary profession of America been backward in supplying the world with new facts? I most emphatically say, No! Can any country show an equal amount of energy in dealing with contagious diseases? Can any country show such practical results in immunizing cattle by which an industry within our borders has been so revolutionized that it means untold wealth? Could this knowledge have become of such national importance without the aid of the press? Again I say, most emphatically, No!

These are facts that are of great import to us as a body; and I, fully appreciating it, trust that each and every one will benefit himself, and thereby the community of which he is a component part, by keeping in touch with the new thought as presented in our veterinary journals, remembering that added patronage increases the power of the press.

Death has made serious inroads in our ranks this past year. As our last meeting was being brought to a close the assassin's blow was struck which plunged the nation into mourning and took from us that staunch friend of the veterinarian—our beloved President of the United States, William McKinley. All nations mourned with us at the untimely end of that great and good man. The story of his life and death will forevermore be an undying example of how a citizen should live and a Christian gentleman may die. Well was it said of him: "No tenderer knight to his chosen lady ever lived. Ambitious, his sympathy made and kept friends; persuasive in his arguments, by appealing to reason and intelligence he had the confidence of all, and his support was loyal." Never were his friends embarrassed by imprudent or unguarded statements, and such was his courtesy at all times that his opponents never were offended.

John Faust, one of the oldest and most highly esteemed citizens of Poughkeepsie, New York, a member of our Association since 1884, died in the month of July, 1901. His death, from general paralysis, was indirectly the result of an injury received in a railroad accident about ten years previously.

Born in Germany in 1835, he came to this country in 1852. Having learned the cooper's trade, he started in business with two brothers, in 1859, at Poughkeepsie, N. Y. All his spare time was given to the study of our profession, and in 1875, the business partnership being dissolved, he devoted his entire time to the study and practice of veterinary medicine and surgery. His success was such that in 1881 the New York Examining Board issued a certificate to him. He served with credit as a member of the Board of Health for several years, and at the time when the question of tuberculosis was being investigated by the State he was appointed by the Governor of New York as an inspector of cattle.

He was the last member elected to our Association who by self-sacrifice had qualified himself. He prized his membership very highly, and was seldom absent from our meetings.

On November 20, 1901, Thomas F. Barron, of Baltimore, Md., died from a complication of diseases, aged fifty-nine years. Following in the footsteps of his father, a self-made man, from his early boyhood he had devoted himself to his profession. He became a member of this Association in 1887, and was a constant attendant at the meetings. A close student, always a gentleman, he was never known to speak disrespectfully of any man.

December 17, 1901, occurred the death of one whose whole life was devoted to his chosen profession. Not only his untiring energy, but his fortune, was contributed to bettering the condition and establishing the prestige of the veterinarian. To him belongs the honor of organizing the Veterinary Department of the University of Pennsylvania, and no one was better qualified to fulfil that trust. Having a liberal education and a broad knowledge of men, he was always ready to give credit when due, but he was without sympathy for an opportunist, and caustic in his denunciation of one. His friendship was to be desired, for once gained he remained ever true to that bond. This Association and others to which he belonged showed their appreciation of him by conferring on him the highest honors they were privileged to bestow. His reputation as a veterinarian was of a national character, and his services were sought and obtained not only by the Government of the United States, but by various associations of the country, to which his broad education, associated with his efforts and labor, made him so well known.

The death of Rush Shippen Huidekoper leaves a vacancy in this Association that will be difficult to fill.

In the death of Robert J. Saunders, who passed away, in his sixty-sixth year, at his home in West Roxbury, Mass., one of the original members of the United States Veterinary Medical Association was removed. A self-made man, he took up the profession of his father. Thoroughly conscientious, self-sacrificing, and studious, he commanded the respect and good-will of all who knew him. His life was spent in the city of Salem, Mass., with the exception of about one year, when on account of rheumatism he was obliged to give up active practice.

The suggestions I have offered and shall offer are made with the hope that the past harmony which has prevailed in the Association may continue. "The Romans until the fall of the empire maintained that all men were equal." "Character and talent will find their level without regard to costume." "Superiority is an attribute of character that is attained by education — practical, literary, and social."

"No member fulfils his duty to this organization who sets himself to find excuses and evasions to escape from constitutional obligations." "In times of excitement some may not have stopped to consider these, but have followed what seemed to be the current of thought. Had they fully investigated the real question and borne in mind their constitutional obligations, certainly they would have fulfilled them with alacrity."

Since the present makes the future, in the words of Daniel Webster "Let us cherish those hopes that belong to us; let us devote ourselves to those objects that are fit for our consideration and our action." "Let us raise our conceptions to the magnitude and the importance of the duties that devolve upon us. Let us preserve our Constitution, and harmony will prevail."

EXTERNAL ULCERATIVE ANO-VULVITIS OF CATTLE.

A PRELIMINARY REPORT.*

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Terminology. The name first applied to the disease under consideration so far as I have been able to learn was "contagious vulvitis of cattle." This name was given by S. Stewart[1] in a verbal report before the Missouri Valley Veterinary Association, February 9, 1898. The name next put upon record was "infectious ulcer of the vulva," a name given by C. Miller[2] in a paper read before the Missouri Veterinary Medical Association, October 3 and 4, 1900.

In November, 1901, while investigating this disease in an outbreak which occurred in the practice of S. T. Miller, he told me that he intended to contribute a paper upon the disease for the next meeting of the Iowa State Veterinary Medical Association, to be held February 11 and 12, 1902. I expressed to him the opinion that the names already given to the disease were not appropriate, an opinion in which he readily concurred. He then asked me to substitute a name which he might adopt in his paper. After further study of the disease I submitted the name which appears in the title of this paper. I did this with a full realization of the enormity of the offense of multiplying synonyms and confusing the terminology of a disease. I believe, however, that if a disease has been badly named it is the duty of some one to find a name which is of logical origin and which will be likely to meet with general approval.

The objection to the names already given was twofold. In using the word contagious in the one name and the word infectious in the other, the name is made to assume too much. A disease should not be designated infectious or contagious until there is fair proof that it is infectious or contagious. Such proof is lacking in case of this disease. The names were not comprehensive enough. They gave but a partial idea of the nature of the process. A name should be as fully descriptive of a disease as is compatible with the enforced brevity of a name as applied to a disease. Since adopting the name of my choice for this disease the *Seventeenth Annual Report of the Bureau of Animal Industry* has been published. On page 28 of that volume reference is made to a disease, which I assume to be the same as the one now under discussion, as gangrenous vulvitis. This name is unsuitable, because the process is not gangrenous and because the name is not comprehensive enough.

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* Read at the Thirty-ninth Annual Meeting of the American Veterinary Medical Association, Minneapolis, Minnesota, September 2, 3, 4, and 5, 1902.

In defence of the name which I have applied to the disease I would say that the disease is primarily and essentially inflammatory, and the name ano-vulvitis sets forth this characteristic and at the same time indicates the location of the morbid process. As the inflammation is ulcerative in character—*i. e.*, characterized almost from the beginning by erosion and superficial loss of tissue, it is best defined by the adjective ulcerative. As the disease has its inception, and in mild cases its localization, upon the external surface of the labiæ of the vulva it is very appropriately described by the term external. If the mucous membrane of the vulva, which may be considered the internal part, is invaded at all, the invasion is secondary to the skin lesions, and occurs only in severe cases.

In applying a new name to this disease I have not been unmindful of the tendency, and in a large measure the accomplished purpose, of medical men to refer all diseases of the external genitals to the domain of dermatoses and to describe each affection under the name of some skin disease which may occur anywhere upon the body. However, the fact that the disease now under consideration extends deeply into the tissues, far beyond the skin, entitles it to a place in nomenclature along with such pathological entities as gonorrhœa, chancroid and syphilis. One would not be justified in essaying a new name for a disease unless he had first made a diligent effort to identify that disease with one already well known, either in human or in veterinary pathology. It is plainly evident that there is no well-defined disease in animals with which this could be identified. In the field of human pathology I have attempted to identify this disease with noma of the vulva, herpes progenitalis and chancroid, the only diseases of human beings which it even remotely resembles, but without success. Syphilis must, of course, be thought of only to be at once dismissed from consideration. The resemblance to chancroid is in many respects striking, but the difference between them is quite distinct. In order not to prolong this discussion beyond reasonable length, I refrain from a presentation of the distinguishing features of these various diseases and the one under discussion, and, instead, refer those interested to recent standard works of genito-urinary diseases and gynecology.

If any one here, now or at any other time, can supply another name and furnish convincing evidence that it is preferable to the one I propose, I will be very willing to abandon my name for his.

History. The earliest date at which a report of this disease was made to a veterinary body so far as I have been able to learn was February 9, 1898, at which time S. Stewart made a verbal report to the Missouri Valley Veterinary Association. The Secretary of that Association reports[3] Stewart as saying that a large herd of heifers, originally from about Trinidad, Colorado, was brought to Kansas City and distributed in small bunches among farmers, and that all of these heifers became affected. I assume that these heifers were afflicted with the disease now under consideration.

C. Miller[4] reports that in February, 1898, he observed this disease in two herds of young cattle near Ottumwa, Iowa.

Steddom[5] reports that on February 17, 1898, he began the investigation of what was doubtless an outbreak of this disease in Marshall County, Kansas. He visited four herds in which the disease existed. He was able to trace the outbreak in one herd back as far as December 25, 1897. The owner suspected that one cow had had the disease and had already recovered when he brought the herd to his farm December 18, 1897. This is the earliest outbreak of this disease that I have any information about.

Parker[6] reports that in December, 1899, Steddom investigated an outbreak of this disease at Westmoreland, Kansas.

S. H. Johnston[7] has informed me that in the winter of 1899 he met with an outbreak at Lake City, Iowa.

In January, 1900, I had my first experience with this disease in an outbreak which occurred in a herd at Harlan, Iowa, in the practice of D. H. Miller.

In 1900 or 1901 a disease which, from the brief description given, I would suppose to have been ulcerative ano-vulvitis was reported from Ohio.[8]

The Seventeenth Annual Report of the Bureau of Animal Industry contains, on page 28, the following statement by Salmon: "Two outbreaks of gangrenous vulvitis in cattle were reported during the fiscal year, and specimens forwarded . . . for examination."

In November, 1901, I investigated outbreaks in several herds at Shelby, Iowa, in the practice of S. T. Miller. These outbreaks have already been reported upon by Miller[9] in a paper read before the Iowa State Veterinary Medical Association, February 12, 1902.

In November, 1901, an outbreak occurred in a small herd near Ames, Iowa.

In December, 1901, an outbreak occurred in a herd at Humboldt, Iowa, in the practice of J. Nicholson.[10]

This is as much of the history of the disease that I have been able to procure. I would not venture to assert that this is a new disease. It is certain, however, that it has not as yet been adequately studied and described. It is not improbable that the disease has been known to veterinarians and laymen for a long time, but no one has been actuated to make mention of it in writing until within the last five years, and then only very briefly.

Kinds of Animals Affected. So far as I have been able to learn external ulcerative ano-vulvitis is circumscribed to the bovine species. Females are by far the most frequently affected. In one herd of twenty-five cattle, one to six years of age, which I inspected, in which were twenty-one females and four males, all of the females were affected, but none of the males. In another herd which I inspected there were in one bunch thirty-two calves, eight to ten months old, of which fifteen were heifers and seventeen steers. All of the heifers and only three of the steers became affected. In another bunch were eight young calves, half male and half female. The females were all diseased, but the males did not become involved. In another herd which came under my notice fifteen heifers became affected, and after a considerable time two steers acquired the disease. Other steers in the same lot escaped. In still another herd in a large feed yard there were being fed about fifty cows and seventy-five steers. All the cows were affected, but only six steers became involved. Steddom inspected one herd of twenty-five, seventeen steers and eight heifers, in which all of the heifers but none of the steers became affected.

To show that there are some exceptions to this I may state that in another herd eight heifers and thirteen steers were being fattened in the same yard, and all acquired the disease.

In several instances ulcerative ano-vulvitis has been observed in spayed heifers.

In respect to age it may be stated that although it seems rather more apt to affect young cattle, there is very little difference in susceptibility on account of age. I have seen it in cattle ranging from two weeks to ten years of age. In one herd of thirty-two head a very aged cow was the only one which escaped. In another case a bunch of twenty-two adult cows being fattened in a yard were affected, and later a number of calves in an adjoining yard became involved. I have never observed the disease in an adult bull.

Season when the Disease Occurs. Ulcerative ano-vulvitis appears to be a disease of cold weather. I have not seen or heard of its eruption earlier than October 15th or later than March 15th.

Etiology. I shall refrain from an extended discussion upon this important part of the subject, for any statement I could make would be purely hypothetic. I regret that my opportunities of time and place have not enabled me to make the study in this connection which is so very essential to a complete knowledge of the disease. The cause of the disease remains thus far entirely unknown. It may be stated, however, that in every outbreak which I have studied the affected cattle were kept in filthy yards which had been used jointly by cattle and hogs for eighteen to twenty-five years. Some of these yards are poorly drained, and at times when the temperature is high enough to cause a thaw they become veritable mud-and-manure-holes. Cattle have not been known to acquire the disease while at pasture. There is no evidence that the disease has any causal relation to coitus.

Is External Ulcerative Ano-vulvitis Contagious? My observations and those of others indicate that it is probably not contagious. On one farm where I made observations there were eight calves kept in an orchard, where the ground was clean, adjoining a stable-yard in which were twenty-five cattle, all but four of which were affected. Only a fence separated the two bunches of cattle, yet none of the eight calves became in the least affected. In another outbreak the owner traded a cow affected with ulcerative ano-vulvitis to a neighbor for a cow which was free from the disease. None of the neighbor's herd into which the diseased cow went became affected. Incidentally, it may be stated that the healthy cow that went into the diseased herd became affected within a week. S. T. Miller[11] informs me that in one instance which came under his observation a bull from a healthy herd broke through a fence into a neighbor's herd which was suffering from ano-vulvitis, served a diseased cow there, then returned to his own herd and soon thereafter served a cow there, yet this was not sufficient to transmit the disease to the healthy herd.

On March 3, 1902, I received, through the courtesy of Dr. S. T. Miller, two heifers from a badly diseased herd in Shelby County, Iowa. One of these heifers had been afflicted for about two weeks, and the other was in the very early stage of the disease. On March 8, 1902, two healthy heifers purchased from a nearby healthy herd were placed in a small enclosure with them. At the end of three months the healthy heifers had failed to acquire the disease. I have no facts which would tend to prove conclusively that the disease is contagious.

Symptomatology. (1) *Mild Cases.* In *females* the attention of a close observer is first attracted to the disease by a considerable swelling and reddening of the vulva. On closer examination it is found that this organ is painful on pressure, and, perhaps, shows an elevation of temperature. There are no constitutional symptoms. Within a day or two there will be noticed upon the skin at the inferior extremities of the labiæ vulvæ one or more spots varying from one-eighth to one-half inch in size, which show a whitening and opacity of the epidermis. At these points shallow ulcers very soon develop. The ulcers are irregular in contour; there is absence of induration at the border, and the floor is either covered with a thin layer of serous, serofibrinous, or puriform exudate, or with a scab. The covering is easily removed, and upon removal the ulcer has a bright red appearance and bleeds readily upon being manipulated. The ulcers increase rapidly in size. The floor of well-developed ulcers shows small elevations which appear like granulations, but are really islands of tissue which have proven more resistant to the necrotic process. The usual seat of the ulceration is at or near the inferior commissure of the vulva, but it may be localized higher up on the vulva or even upon the anus. In case an ulcer is located close to the mucocutaneous border of the vulva and extends so deeply as to pass through the skin, its edge may encroach upon the mucous membrane of the vulva; otherwise the vulvar mucosa remains intact. There is no itching, no secretion from the vaginal or the vulvar mucous membrane, no discernible discomfort, and no constitutional disturbance. The disease is purely local, and is mild in its manifestations. In *males* the trouble is at times localized upon the anus and the skin contiguous thereto, but is more frequently found upon the folds of skin passing from the root of the tail toward the sides of the anus. The features of the ulceration here are the same as in the case of the related structures of the female.

(2) *Severe Cases.* Ulcerative ano-vulvitis may assume a very grave character, producing extensive necrosis of the tissues, and in the worst cases leading to the death of the animal. In *females* there is a considerable number of cases in which the ulcerative process leads to the loss of the lower portion of the lips of the vulva, leaving only a large, angry-looking, raw surface to mark their place. The ulcer in these cases is phagedenic in nature, bringing about a uniform and rapidly advancing superficial necrosis with sloughing of the necrotic tissues at a correspondingly rapid pace. No large masses of necrotic tissue remain to become putrid, but as fast as the tissue becomes devitalized it is cast off. Thus the process, no matter how much the body is invaded, always remains superficial. It is always a true ulcerative process. The necrosis is confined to the surface. In cases of this degree of severity the affected parts emit a very repulsive odor of putrefaction.

The animal loses flesh, is stunted in growth if a young, growing animal; the coat is roughened, and there is general unthriftiness. In a few cases the entire vulva and anus undergo disintegration. One yearling heifer which I examined in January, 1900, showed loss of all the tissues between the sacrum, a line about two inches inferior to the vulva, and the ischial tuberosities. The loss of tissue extended inward as far as the ano-rectal and the vulva-vaginal boundary. A very large, foul-looking cavity was thus produced. The odor was very repulsive. Still, the ulceration was superficial, the dead tissue being in a thin layer. This animal had been lying for several days and kept the recumbent position in spite of urging; refused to eat; had lost much flesh; its coat was rough; was constipated and the urine was retained; it strained at short intervals and persistently, though it did not succeed in passing any feces or urine. Its condition was deplorable. As recovery seemed out of the question, and, as the resulting deformity of the parts would have rendered the animal useless if healing could have been induced, the heifer was killed in order that an autopsy might be made. I have reports of eight other cases which were nearly if not quite as badly affected as this. Three of these died of the disease, and the others recovered. One of the three that died was a cow five years old, and the other two were heifers eight to ten months of age.

Animals in which the disease makes such alarming progress stand about with the back arched; lose flesh rapidly; become rough in the coat; are constipated; eat sparingly; emit a very offensive odor, and evidently suffer much discomfort. The two heifer calves spoken of above which died did not suffer from decubitus. They were able to walk about in the evening, but were found dead the next morning.

In *males*, so far as I have been able to learn, the disease does not assume the very grave form seen in females. The invasion is in some cases quite extensive about the anus and root of the tail. In the case of a steer, ten months old, which I inspected there was marked ulceration around the root of the tail, especially on the dorsal surface and extending forward over the last two sacral vertebræ. The destruction of tissue extended to the bone, and there seemed to be imminent danger that the tail would be separated from the body. I have not learned of any deaths in males from this disease.

Course. It must be admitted that, as a rule, the course of ulcerative ano-vulvitis is rather mild, even when no treatment is applied. I have a record of one herd which I inspected, nearly all the individuals in which were afflicted; yet, although they were not favored with any treatment, they all made good recovery, without deformity. The disease, however, assumed a chronic course, as it existed in the herd for about five months and did not disappear until the cattle had been put upon pasture in the spring. The disease, once started, will get a foothold upon all or nearly all the individuals in the herd in an incredibly short time, say in ten days or two weeks at most. Treatment cuts short the progress of the disease. Most cases will be cured in two weeks to a month. Severe cases yield much less promptly. One of the fatal cases in which the necrosis was very destructive to the tissues ran a very short course, the animal having died of the disease within two weeks after its onset. The heifer referred to above as having been killed for autopsy, and in which the destruction of tissue was very great, is an example of an acute form of the disease, the course in this case not having been over three weeks. Cases in which extensive necrosis occurs within two or three weeks are by no means seldom encountered.

The period of incubation, using this term with reserve in this connection, is very short. In one herd that I inspected a healthy cow for which the owner had traded became affected within a week after being put into a diseased herd. Two other cows brought into this diseased herd at another time also became diseased within a week. In another herd which came under my notice, two heifers about eight months of age, which had been brought into the diseased herd in a healthy condition ten days before my inspection, I found to be in the early stages of the disease. In still another case a car-load of fat cattle which had been affected were taken out of the yard for shipment, and twenty-five head of cows and steers were at once put into the yard. Within three weeks nearly all of them had contracted the disease.

The course of the disease in a six-month-old heifer which I had under observation was as follows: On March 3, 1902, two weeks after the onset of the disease, the lower part of the vulva was found destroyed by ulceration, leaving a raw surface about three inches in diameter. March 12th it was noticed that granulation was well established, and that the ulcer was diminished in area by one-half and covered by a dry scab. March 16th further improvement was noted. March 22d the heifer was practically well, a scab about one-third of an inch in diameter being the only evidence of disease apart from the deformity resulting from the loss of tissue.

The course in a grade heifer eight months old which I had under observation was as follows: March 3, 1902, this heifer showed on the right lip of the vulva near the inferior commissure a shallow ulcer three-fourths of an inch in diameter, and on the left lip a little higher up an ulcer of about half this size. March 7th this heifer showed marked improvement. March 12th is nearly well. March 16th has entirely recovered. Neither of these heifers received any treatment except a change of locality.

Pathological Anatomy. Macroscopy. In all cases there is at the inception of the attack tumefaction and congestion of the vulva or other parts affected. In *mild* cases ulcers appear on the labiæ vulvæ, most commonly at or near the lower commissure, or about the anus of females, or upon the anus or the folds of skin at the base of the tail in males. In ulcers of most recent development only the epidermis and the upper portion of the corium have undergone the destructive process, but soon the entire thickness of the corium breaks down and is sloughed off, leaving an ulcer of considerable depth. The ulcers are in a few cases nearly free of exudate and present a reddish floor, but are in most cases surmounted by a serous, seropurulent, purulent or scaly covering. This exudate is easily removed, and when removed there is presented an angry, red, ulcerating surface which bleeds readily upon manipulation or scraping. These ulcers are irregular in contour, and their borders are not indurated. Upon the floor of the deeper ulcers there may be seen islands of tissue which have proven to a certain degree resistant to the necrotic process. In *severe* cases the affected parts are involved in an extensive disintegrating process which rapidly invades the tissues. The entire anus and vulva and surrounding tissues for several inches in every direction may be destroyed. The surface of the enormous ulcer thus produced is covered by a layer of exudate and necrotic tissue. This layer is, however, in all cases which I have observed surprisingly thin. Instead of having a thick stratum of gangrenous tissue separated from the healthy tissue by a well-defined line of demarcation, as one might expect, there is this thin stratum of exudate without the presence of any distinct line of demarcation. The process of necrosis is at all times a superficial one. The dead tissue is cast off as soon as death takes place. The process is in the truest sense an ulcerative one. At some places upon the surface the tissues are frayed out, presenting a large number of filamentous projections one-half inch or more in length. When the necrotic débris is removed there is revealed a highly inflamed surface directly underneath. One needs to cut only a short distance—not over one-half inch at most—into this tissue in order to reach apparently healthy tissue.

In one animal, a yearling heifer, referred to above as being very badly affected, upon which I had an opportunity to make an autopsy, I was able to study the pathological conditions quite carefully. The external lesions were such as I have just described. The general condition of the body was nearly normal. The only departure from normal that was distinctly visible was a serous infiltration of the lymphatic glands, especially in the posterior part of the body. These glands were much enlarged, quite succulent and grayish in color, having lost the pinkish tinge common to healthy lymphatic glands. There was no indication of suppuration or disintegration of any sort in the lymphatic glands.

Microscopy. There is nothing especially characteristic about the microscopic changes in the tissues. These changes are such as are common to inflammatory conditions on surfaces in which the necrotic process predominates over the reparative process. In a general way it may be said that there is at the surface a stratum of necrotic tissue elements, underneath which is a stratum in which an active inflammatory process is going on, and which gradually merges into healthy tissue below.

At the surface edge of a section made through the floor of an ulcer and at right angles to the floor is a thin layer of detritus consisting of fragmented nuclei, broken-down cell contents which have undergone liquefaction and subsequent desiccation, and a liberal amount of fibrin of the fibrillar variety. Below this is a layer of dense cellular infiltration in which the cells are chiefly polymorphonuclear and small mononuclear leucocytes. The presence of the large number of polymorphonuclear leucocytes is in harmony with the clinical aspect of rapid ulceration. In the thinnest sections the two varieties of cells mentioned are packed so closely together as to obscure or at least to make uncertain the identification of any other varieties of cells which might be present. Below this is a deeper layer of round-cell infiltration which gradually merges into the healthy tissue below. This layer is freer from fibrin than the other layers and is free of detritus. In double staining more of the nuclear and less of the contrast stain is taken. The field is much clearer and more transparent. The walls of the bloodvessels in this stratum show cellular proliferation which results in considerable thickening of their walls. The lumen of the vessels and the perivascular spaces are filled with blood corpuscles of which the red ones greatly predominate. Accumulations of red blood cells partly broken down are seen at other places without any special reference to the vessels. Occasionally there can be seen newly formed capillaries. A good deal of fibrillar fibrin is found scattered throughout this layer. Plasma cells, polymorphonuclear leucocytes, transitional leucocytes, lymphocytes, and fibroblasts are met with on every hand in this stratum. There is marked serous infiltration between the trabeculæ of connective tissue. This is most prominent in cases where the ulceration has not advanced very far.

There are no well-defined lines of separation between the three strata just described. They merge gradually into one another. The predominant character of the one gives way insensibly to the predominant character of the other.

In one case I was enabled to study a small ulcer which had at its greatest depth but very little more than passed through the cutis. At the edge of the ulcer the integrity of the skin was preserved, there being no demonstrable lesion in it. Approaching toward the centre of the ulcer the first noticeable change was a necrosis of the epithelium of the epidermis, shown by a sort of melting together of the cells and the failure of their nuclei to take the stain. At this point there is no especial change in the corium. Still farther toward the centre of the ulcer round-cell infiltration and chromatolysis are encountered. These, of course, involve the corium. Even at this point the general outline of the epidermis is preserved, it being stretched, parchment-like, over the infiltrated corium beneath, although the morphology of the cells is impaired. Finally one comes to a point where the skin is entirely lost, and there is presented a picture such as already described elsewhere.

I have been able to study sections of tissue from animals suffering with this disease in all its stages. Some of these tissues were obtained at autopsy, while others were removed from the living animal at the time of treatment. The tissues were fixed in formaldehyde and embedded in celloidin. The stains used were Van Gieson's, the double stain of hematoxylin and eosin, the double stain of eosin and methylene blue, and Weigert's fibrin stain.

Diagnosis. The diagnosis of external ulcerative ano-vulvitis of cattle offers no difficulties. There is no other disease with which there is much likelihood that it will be confounded. The objective signs are sufficient ground upon which to base a diagnosis. The early evidences of the disease are apt to be overlooked. If there is an unusual accumulation of filth having the appearance of a small scab about the lower commissure of the vulva, or about the anus, or if these parts are swollen and reddened, there is reason to suspect the presence of the disease, and the animal should at once be properly secured and thoroughly examined.

Differential Diagnosis. (1) *Eczema.* Eczema of the skin of the anus or vulva may present naked-eye features similar to those of the early stages of ulcerative ano-vulvitis, but the presence of itching in eczema and its absence in this disease would probably serve to distinguish them from each other. Eczema is characterized by vesicles and by a more diffuse distribution. Moreover, it does not extend deeply into the tissues. The more severe forms of ulcerative ano-vulvitis could not be confounded with eczema.

(2) *Vesicular Exanthema of Cattle.* The absence of participation of the vulvar and the vaginal mucous membrane in the pathological process, the failure to establish any relation with coitus, the absence of involvement of the male genital organs, the extensive necrosis in bad cases of ulcerative ano-vulvitis would be sufficient to preclude the possibility of mistaking one of these diseases for the other.

Prognosis. As a rule, this may be considered favorable, even without treatment. There are some cases, however, which will run rapidly to a fatal termination unless properly treated. Treatment cuts short the course of the disease, and even severe cases, with few exceptions, yield well to treatment. The mortality in the outbreaks which have come under my observation has been about 2 per cent. There has been no mortality in cases which have been treated. Complete recovery, absence of deformity, and restoration of heifers to full usefulness are dependent upon treatment early in the disease in each individual case. If neglected any case may very soon get beyond control.

Treatment. This may be curative and probably preventive, although our ignorance as to the cause renders preventive treatment problematical. There is some indication that the causative factor is an infectious material derived from yards which have grown filthy from prolonged use without sufficient attention to cleanliness. If this be so, the inference would be that the disease can be prevented by thoroughly cleaning the yards, by ploughing and hauling to the fields for fertilizer several inches of the surface ground and replacing it with fresh earth, or, better, with gravel or brick pavement. The manurial value of the surface ground would, I believe, be sufficient to compensate for the labor of removing it. If an earth or gravel bottom is maintained it should always be kept well bedded with clean straw. Cattle yards are, as a rule, too large. If their size was diminished they could the more readily be kept clean.

Curative treatment has been followed with good success. The underlying principles are disinfection and the application of some protective dressing. My experience leads me to believe that the removal of the affected herd to new and clean quarters as soon as the presence of the disease is determined would be a very valuable part of the curative treatment, and would in the milder cases be all the treatment that is necessary.

Steddom[12] reports as follows, in reference to the treatment of an outbreak in Kansas: "The first appearance of this disease in the calves was noticed three weeks ago, and a week later treatment with medicine (nitrate of silver as a caustic, and creolin—5 per cent. solution—as a wash) was commenced. But one application of caustic and creolin has been given each animal. They are all rapidly recovering."

C. Miller[13] reports his treatment as follows: "Using carbolic acid as an antiseptic, I took hot water and cleansed the parts, tail included, thoroughly, after which I applied a strong solution of ordinary white lotion, using a piece of cotton in applying it to the parts. The tail where it came in contact with the vulva was covered with vaseline, also the parts of the vulva not involved in the ulcer. In those cases where the ulcer was small I touched with a pencil of silver nitrate, which had the effect of arresting the action of the micro-organism at once. In fact, all the ulcers in whatever stage responded to the former treatment and commenced healing slowly from the first application. These applications were made four consecutive mornings, when the healing process was so far advanced that further treatment was deemed unnecessary, and within ten days they were completely healed, with no traces of the disease except in those cases where the vulval tissues were so nearly completely destroyed before any application was made."

D. H. Miller[14] reports as follows upon his treatment: "I removed all the diseased tissue that I could with curved scissors. Of the fifteen treated I applied to one-third tincture of iodine, to another third was applied a strong solution of corrosive sublimate, and to the rest a strong solution of creolin. This treatment was repeated twice. All recovered very rapidly. One treatment appeared to be as good as another. There has never been any recurrence of the trouble in the two years since the outbreak."

S. T. Miller[15] reports as follows upon his method of treatment: "I used for treatment a wash of a strong solution of mercury bichloride to cleanse the parts, after which I applied an ointment made up as follows: Iodoform, 20 grains; oil of eucalyptus, 40 minims; carbolic acid, 20 minims; petrolatum enough to make 2 ounces. This treatment effected a very speedy and permanent cure."

Miller does not state the strength of the corrosive sublimate solution used, but has since informed me that it was about 1 to 200.

L. A. Klein[16] reports as follows upon the treatment he pursued in the outbreak at Ames: "My treatment consisted of cleansing with creolin solution, cauterizing with nitrate of silver, followed by daily dressing with an ointment of acetate of lead 20 parts, tannic acid 10 parts, carbolic acid 5 parts, lard 65 parts. The case did well under this treatment. It was not very far advanced when I took hold of it."

J. Nicholson[17] informs me that in a herd he was called upon to treat for ulcerative ano-vulvitis he at first made use of a 5 per cent. solution of carbolic acid, applied by projecting it upon the parts with an ordinary piston syringe, and followed it by an application of boric acid. This was used about two weeks without good results. The treatment was then changed to creolin (Pearson), 1 to 40, applied by means of a syringe. The disease yielded quickly to this treatment. Only two applications were made except in three very aggravated cases, which had to be separated from one another and treated by creolin applications over a considerable period of time.

Although other measures doubtless do bring good results, I believe the best results are to be obtained by removal of necrotic tissue with the scissors or the curette, disinfection with some strong disinfecting solution such as referred to above, followed by the application of some such ointment as is formulated above. The advantages in the use of an ointment are that it keeps a curative agent constantly in contact with the affected area, prevents further contamination, and provides in a measure against the excoriating influence of the movements of the tail.

I am convinced also that removal of the entire herd to new, clean quarters, and the subsequent isolation of the severe cases will materially hasten the recovery.

Terminations. Mild cases make a complete recovery without any visible scar formation. In moderately severe ulceration, where healing takes place without extensive scar formation, the labiæ of the vulva are frequently left permanently thickened, indurated, and with diminished elasticity. In animals in which the ulceration has been extensive, if recovery occurs there results a very marked deformity of the vulva. I offer the following observations which I have made in this connection :

CASE I.—Grade Hereford heifer, eight months old. This heifer had suffered considerable ulceration of the vulva, but the healing took place without treatment within five weeks after the beginning of the attack. After healing had taken place I noticed that the orifice of the vulva was so small as to barely admit my little finger. Believing that this heifer would be useless for breeding purposes, I performed oöphorectomy upon her. I have seen her a number of times since and she is doing well.

CASE II.—Grade Aberdeen Angus heifer, one year old. This heifer suffered a very severe attack, the ulceration extending quite deeply, as far laterally as the tuberosities of the ischium, upward to the tail and downward to a line two inches below the vulva. Since healing there is scarcely any trace of the lips of the vulva, and the external orifice admits only the index finger. The anus is considerably shrunken by scar-formation. The growth of the animal has been much interfered with by the disease.

CASE III.—Grade shorthorn heifer, eight months old. Was quite badly affected. After healing only a small vestige of the labiæ remained. The orifice will admit only the forefinger. The animal has been much stunted in growth.

CASE IV.—Grade shorthorn heifer, eight months old, which had been seriously affected. Now there is almost no part of the lips of the vulva left. The vulvar orifice is only a slit about five-eighths of an inch long, and admits with difficulty the end of a lead pencil of ordinary size. The urine is passed with considerable force in a stream about the size of a large wheat straw. This heifer is much stunted in growth on account of the disease.

CASE V.—Grade heifer, eight months old. The lips of the vulva are tumefied, knotted, and much indurated. The vulvar orifice is about one and one-half inches long, and admits the index finger easily. The animal is considerably stunted by the disease.

CASE VI.—Grade shorthorn yearling heifer. Vulva tumefied and indurated. Orifice will admit two fingers. There is considerable scar-formation.

In heifers thus deformed their posterior aspect bears a close resemblance to that of a steer, and a careful examination is in some cases required in order to make sure of the sex of the animal.

D. H. Miller[18] reports that in the worst cases among the heifers in a herd which he treated the vulva was entirely destroyed, and when healing occurred under the influence of treatment only a small hole was left for the heifer to urinate through.

In the most malignant cases the necrosis continues to an extreme limit, causing an extensive loss of tissue until finally death results.

Economic Importance. This has, in a large measure, been indicated under the head of Terminations. It is readily seen that such widespread loss of tissue with consequent deformity and contraction of the outlet of the genital canal would unfit a heifer or cow for breeding purposes. She would receive the service of the bull with difficulty if at all. But, even if service of the bull would be possible, or, if impregnation should be accomplished by some artificial means, still there would remain an obstacle to parturition which would, to say the least, render breeding impracticable. The only logical recourse is to submit such an animal to oöphorectomy. This would be little if any loss in case of a grade animal or a pure-bred one of small intrinsic value, but the loss would be very serious if a valuable pure-bred heifer or cow should be involved.

The loss through fatalities is not to be overlooked in the consideration of the economic importance of the disease. If we add to these factors the loss through poor nutrition, stunting in growth, trouble and expense of treatment and discouragement to the owner, there is in the aggregate enough economic loss to give ulcerative ano-vulvitis a rank of considerable importance in the catalogue of diseases which afflict our herds.

The owner of eighty head of cattle, about two-thirds of which were affected, and two of which died, estimated his loss on account of the invasion of the disease at $300. Another farmer sold a car-load of imperfectly fattened cattle because they became affected. He lost by having deficient weight and by a subsequent advance in the price of fat cattle per pound.

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THE PATHOGENESIS OF EQUINE PNEUMONIC EMPHYSEMA.[1]

By A. H. BAKER, V.S.,
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CONSIDERING the fact that this disease materially injures the victim of it, reducing his market value and usefulness—in some cases almost to uselessness—and considering that it is very prevalent in the eastern and increasing in the western part of this country, it becomes one of the most important subjects for our consideration and our duty to exert our influence on the farmers, to induce them to harvest their fodder at such a time as to reduce the indigestibility of it, and on those having the care of horses to observe better hygiene in the feeding and watering of them to prevent this distressing, and in all chronic cases, incurable affection of horses.

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[1] Presented at the Thirty-ninth Annual Meeting of the American Veterinary Medical Association, Minneapolis, Minn., September 2, 3, 4, and 5, 1902.

Pneumonic emphysema is a reflex neurosis due to faulty dietetics in 99 per cent. of the cases, the remaining 1 per cent. being due to previously existing pulmonary affection, viz., bronchitis. The origin of this reflex neurosis is in the gastric ramifications of the pneumogastric or vagus nerve. This neurosis, arising in the stomach, produces morbid anatomy in the lungs primarily and only; the cardiac complication arises secondarily and consequently. The gastric manifestations are entirely functional, those of indigestion, among which I may mention thinness of flesh, pot-belly, long rough coat, profuse evacuation of gas per ano, and the liability to flatulent colic, owing to the distention of the stomach and reduction in quantity of the gastric juice. The bowels also become greatly distended, and digestion is so tardy and weak that fermentation of the food is excessive, giving rise to the increased flatus. The disease is induced by a gluttonous appetite; a poor feeder never has it. The horse with heaves is inclined to eat everything in sight. It is produced by long-continued over-eating of over-ripe hay. The two kinds of hay that I have had experience with as causing emphysema are timothy and red clover. These grasses when left to get too nearly ripe before being cut for hay become very ligneous in their stalks, so much so that the lower half of each stalk is wholly unfit for food for horses. This over-ripe hay fed liberally to horses for weeks or months produces a long-continued over-distention of the stomach of the gluttonous feeder; this produces a neurosis of the gastric portion of the vagus, at first hyperæsthesia, followed by enervation, which creeps forward and involves the pulmonary branch, the source of pulmonary enervation, in a neurasthenia that weakens the contractility of the lung substance and lessens its power to expel the tidal air. The disturbance is purely functional at first, manifested by rapid breathing, frequent cough, dilatation of the nostrils, and more or less lassitude. If the cause is not removed in the course of three to six months the contractility of the parenchyma of the lungs becomes impaired, resulting in dilatation of the vesicles, rupture of many into one, and atrophy and pallor of their walls. This pallor is due to anæmia of the distended vesicles, reducing the calibre of the outlet for the blood from the right side of the heart by obliteration, to a greater or less extent, of the capillaries of the pulmonary tissue, leading to dilatation of the right auricle and ventricle. These disturbances are purely functional for two to six months. During this time the disease may be said to be incipient, and is curable under rigid hygienic rules; but if the cause is not removed the morbid anatomy soon becomes chronic and incurable, and gives rise to the double expiratory motion of the organs of expiration. The first half of the expiratory act is performed naturally and with ease, but the contractility of the lungs is so seriously impaired that the abdominal muscles are brought into strong contraction to expel the balance of the tidal air. When this is accomplished they relax quickly and drop back spontaneously into their natural positions; then the inspiration takes place normally. This disease is subject to frequent exacerbations of symptoms by over-eating and drinking, or active work soon after eating, especially if facing the wind.

It may be safely said that pneumonic emphysema never occurs in horses at pasture, nor on prairie hay, nor in horses getting liberal quantities of oats and correspondingly small quantities of hay, nor on timothy and clover that were cut at the proper time.

After thus considering the connection between cause and effect, the question of prophylaxis naturally arises. The question when is the proper time to cut timothy and clover suggests itself. In my opinion it is when the seed is in the milk. In order to catch them in this stage of development they must be cut a day or two after they are in full bloom. Those grasses mature very rapidly, and once they have passed the full-bloom period the stalks become woody very quickly, so much so that if left a week longer, the lower half of the stalk is not only unfit for food, but actually injurious to the horse that eats it.

As a further protection against emphysema and to maintain the stomach in a healthy condition, horses should be fed sufficient grain to make it unnecessary to give them more than a moderate amount of hay, and gluttonous feeders should be muzzled after they have consumed their rations, to prevent them from engorging themselves on their bedding.

The European authors do not recognize the influence of dietetics in the etiology of this disease. The English hint at it, but fail to give it any importance. Professor Law, in volume i. of his admirable work on *Veterinary Medicine*, on page 274, says under

Causes: "This disease is essentially the result of faulty feeding and working, though pre-existing diseases of the air-passages and sudden, violent, muscular efforts no doubt occasionally contribute to its development." On page 278 he says: "The question arises how a disturbing cause operating directly upon the digestive organs should affect the respiratory in such a marked and permanent manner. It cannot be because of the gastric and abdominal distention, since pregnant mares, though in a state of much greater plenitude, are not thereby rendered liable to broken wind; and if they have previously suffered from this infirmity, the symptoms are less marked when breeding." Then he refers to a theory advanced by Dupuy, that certain disturbances of the stomach and intestines so impair the function of the vagus nerve that the lungs are affected, at first functionally and afterward structurally, but no theory is advanced as to the cause of this disturbance resulting in emphysema. The point I wish to emphasize is that long-continued distention of the stomach, not by any particular kind of food, but by food of a particular quality, is the cause of emphysema, and this particular quality is found in the rank growth of the grasses above mentioned on the rich soil of our Western prairies, in which case it is specially necessary that it should be cut before the stalks become woody.

VOGES' DESCRIPTION OF MAL DE CADERAS, A SOUTH AMERICAN TRYPANOSOMATIC DISEASE OF DOMESTIC ANIMALS.

By Ch. Wardell Stiles, Ph.D.,
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The attention of the United States Government has recently been called to a serious malady of horses in the Philippines. This disease is known as surra, and is caused by a protozoon, *Trypanosoma Evansi* by name, which lives in the blood plasma and destroys the red blood corpuscles.

As soon as surra was diagnosed in the Philippines the Bureau of Animal Industry prepared an emergency report on the subject[1] discussing not only surra, but also allied maladies, such as tsetse-fly disease, dourine, and mal de caderas—three other equine maladies described as being due to trypanosomatic parasites. At the time the report in question was written little was known regarding mal de caderas, but just after the proof-sheets were returned to press, and too late to make additions, an important paper on mal de caderas[1] appeared. This article contains many facts of interest to North American veterinarians and stock raisers, and on this account an extended review of Voges' paper is here given, so that mal de caderas may be compared with surra as described in the bulletin just mentioned.

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[1] Salmon and Stiles. "Emergency Report on Surra, with a Bibliography of Allied Trypanosomatic Diseases, by Albert Hassall." Bulletin No. 42, Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C., 1902, pp. 152, 112 illustrations.

The name *mal de caderas* is a vernacular term based upon one of the chief symptoms, namely, a paraplegia of the haunches, and means "disease of the haunches."

The disease appears to have existed for some years past in the central portion of South America. Although the first published reports date but a few years back (1899), an account of the malady was sent to Europe as early as 1842, but did not receive any attention. Voges divides the disease into two stages.

First stage: In experimental cases, if 5 to 20 c.c. of blood from a sick horse are injected into a healthy horse a fever develops four or five days later, increasing from hour to hour, and remitting somewhat on the following morning, or increasing steadily to 40° or 41° C. During the following day the temperature falls to or near the normal, usually reaching its lowest point on the second day. The temperature now rises again, day by day, until after another five days it again reaches or exceeds 40° C. This alternation occurs two, four, or even six or eight times in succession, the intermissions usually varying from three to six days. Pulse and respiration remain normal, and there is scarcely any change in the appetite except that in the evening, at the height of the fever, the appetite is slightly diminished; thirst increases. The feces are usually normal, but occasionally contain blood. Temporary hæmoglobinuria develops, and hæmaturia becomes almost constant. Sight and sense of hearing remain normal. The coat remains smooth and glistening, and in case the attack occurs during the period of the fall of the hair this process occurs in the normal manner. Reflexes are normal. The intermittent fever is the most characteristic of all the symptoms.

Second stage: The transition to the second stage is gradual. As the disease progresses the intermittent character disappears. The fever does not rise so high, 40° and 41° C. being exceptional;

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[1] O. Voges. "Das Mal de Caderas." Zeitschrift f. Hygiene u. Infectionskrankheiten, Leipzig, vol. xxxix. (3), März 13, pp. 323–371, pl. 5, figs. 1-7. [Wa.]

the remissions are also less prominent. The temperature usually varies between 38.5° and 39.8° C. The animal lacks energy; the head hangs; the entire posture of the body becomes indolent, and even the wildest and meanest animals show no disposition to bite or kick. The patient becomes emaciated, although the appetite continues; thirst continues, and even increases.

Proportionally to the increasing general weakness of the body the heart becomes weaker, so that it cannot propel the blood; œdema develops, especially in the hind legs; the coat becomes staring. The sensibility is so decreased that the horse makes no effort to rid himself of the swarm of flies which settle upon him, but in some cases reflex movement remains unimpaired. Respiration, digestion, and feces remain normal or nearly so. Hæmoglobinuria is usually absent, but the urine nearly always contains red blood corpuscles. Urination is frequent and abundant, owing to the large amount of water taken in. The animal shows no signs of pain.

The gait is not always normal. In some cases the animals drag themselves slowly forward; in others their walk resembles that of a drunken man. The patients may fall, and then become so exhausted in their efforts to rise that they die within twenty-four hours. If they are "tailed up," however, they may continue to live eight to fourteen days longer; some animals are able to stand and walk to the last. Toward the end the temperature undergoes marked changes, varying from morning to evening between 34° and 39° C.; death rarely occurs during a high temperature. The entire illness may last from fourteen days to more than four months.

Gross Pathology. Staring coat and the above-described œdema are present. The hide is removed with difficulty, as the flesh is usually very dry, similar to the condition found in cholera patients. The pleural cavities contain a serous, yellow, usually clear or only slightly clouded exudate, often several litres in amount, and containing red and white blood corpuscles. Fibrous deposits are found on the pleuræ in small or in larger quantities. Lungs are normal. The cardiac sac is filled with a large amount of exudate similar to that found in the pleural cavity. The cardiac muscle is normal or dilated, and pale like the other muscles. The lymphatic glands are slightly swollen. The abdominal cavity contains an exudate similar to that found in the pleural cavity, and similar fibrinous deposits are found, especially upon the liver. The intestinal canal appears normal. The spleen is enormously enlarged, the enlargement being in proportion to the length of the attack. The liver also is enlarged. The kidneys are pale on section, and they, too, may be enlarged. The lymphatic glands are often swollen.

Seasonal Conditions. The disease occurs only in regions where swamps exist. It is also reported to be a wet-weather disease, and Dr. Kemmerich is quoted as authority for the statement that if the plants are removed from a swamp, and a permanent wave motion provided for, the disease is controlled. Kemmerich also advises that horses be kept in stables instead of in camps, and reports that this precaution resulted in stopping the disease.

In droves of horses in which the malady has broken out the disease may be arrested by taking the animals to a high, dry locality.

Economic Importance. Mal de caderas is of great importance from a military standpoint, as is seen from the fact that five cavalry regiments lost 1039 horses and 489 mules within six months, the deaths being due to this disease. The morbidity varies from 25 to 100 per cent. The lethality of mal de caderas is placed at 100 per cent.

The Blood. The blood count shows an enormous decrease in red blood corpuscles, from 10,000,000 down to 4,000,000 or 3,000,000, or even as low as 800,000; at the same time there is an increase in the white blood corpuscles. Subcutaneous injections of blood from diseased animals result in causing the disease, but experiments with the blood filtrate as well as with ingestion of blood were negative. The hæmoglobin decreases from 13.1 per cent. to 3 or 4 per cent.

The Parasite. Mal de caderas is a blood disease, like surra, caused by a parasitic protozoon, to which Voges in his preliminary paper gave the name *Trypanosoma equinum*. Voges' present description does not permit us to distinguish clearly between *Trypanosoma equinum* and certain allied species of the same genus. The reproduction of the parasite is described as consisting of (1) a longitudinal division, or (2) a transverse division, or (3) segmentation; but it seems probable that at least some of the cases of alleged transverse division represent the agglutination of the parasites. The organisms appear in the blood about five days after infection, increasing in proportion to the rise in temperature, until, as a rule, they suddenly disappear when the fever reaches 40° C. About three to five days later they can again be discovered, and they increase again in proportion to the animal's temperature. At their height they are about 10 to 25 per cent. as numerous as the red blood corpuscles. In the second stage of the disease this periodicity of the parasite becomes more or less obscure.

The important fact was determined that the blood is usually non-infectious twenty-four to forty-eight hours after death, thus showing a marked difference from bacterial diseases like anthrax.

Animals Affected. Asses and mules are much less susceptible to the disease than horses.

Mice—both the white and the gray—are especially susceptible. In twenty hours after the inoculation of white mice it is possible to find trypanosoma in the blood. Gray mice are less susceptible, and the parasites are not found until about three days after inoculation. In the case of white mice the parasites increase so rapidly that on the fourth or fifth day they are more numerous than the red blood corpuscles. Gray mice die about twelve to fourteen days after infection. All mice, without exception, die on the first attack. Thus mice are exceedingly susceptible to the disease, and are therefore very valuable as aids in diagnosis.

Rats are also susceptible. In the case of white rats the parasites appear in the blood of the tail four to five days after infection. Crosses between the white rat and the wander rat are more resistant, the protozoa not appearing in the blood until the fifth to the seventh day. As in the case of infection of mice, the parasites increase to such an extent in rats that the protozoa outnumber the red blood corpuscles. The wander rat is still more resistant, and in some cases the parasites disappear temporarily from the circulation. Most rats, however, die in the first attack.

Rabbits may live for one to three months after infection. The parasites may not be evident in the circulation for four weeks after inoculation. There is profuse lacrymation, the conjunctivæ become catarrhal, the eyes become dim, and a pus-like secretion forms, by which the lids are closed. In bucks the testicles swell and become inflamed, and similar changes appear in the vulva of doe rabbits.

Dogs contract the disease and live two to three months. The œdema is quite prominent, especially on the head and eyelids. The conjunctivæ become affected, and the eyes become dull and more or less inflamed—conditions which are similar to those which take place in rabbits. The œdematous condition of the scrotum is striking, but the penis is not affected. The dog is about as susceptible to mal de caderas as the rabbit or slightly less so. There are times when the parasite almost or quite disappears from the blood.

In sheep and goats the disease is fatal, but the animals may live for months without showing any special symptoms; then they become emaciated and suddenly die. The appearance of the parasites in the blood is periodical.

The disease was fatal to a monkey (*Nictipitheous felinus*).

Cats die about four weeks after infection without having shown any special symptoms during the disease.

Two specimens of *Nutria* were also killed with mal de caderas about ten days after infection.

Guinea-pigs are much less susceptible than the other animals, only about one-half to two-thirds of the infected animals dying. Death occurs from two to five months after infection.

Cattle appear to be immune, and Voges records a case where an animal was kept one and a half years, and, despite the fact that it was inoculated with large quantities of trypanosomatic blood, it gained in weight.

Mal de caderas is transmissible also to birds, and Voges inoculated chickens, ducks, and turkeys with fatal infections. Chickens die in the second or third week. During the disease they become very emaciated, but exhibit no other symptoms.

Voges' views relative to the cause of mal de caderas were opposed in South America, and in reply to his opponents he argues that *Trypanosoma equinum* of the horse cannot be identical with *Trypanosoma Lewisi* of rats. The disease is, however, similar to dourine and also similar to surra (Voges unites surra and nagana), but Voges considers mal de caderas distinct from both dourine and surra.

In reference to transmission, Voges has experimented with bloodsuckers, with negative results, and he now suspects flies belonging to the species *Musca brava.*

Diagnosis. The disease may be diagnosed with the aid of the microscope. Diagnosis of doubtful cases is made possible by injecting 1 or 2 c.c. of blood from the suspected horse into a mouse; the blood of the latter may then be examined after one to four days.

Treatment. Experiments in treatment with quinine, methylene blue, enterol, salicylate of soda, turpentine oil and permanganate of potash, iodide of potash, and intravenous injection of corrosive sublimate were all negative. Arsenious acid gave temporary favorable results. Experiments in serum therapy were negative.

PUERPERAL MANIA IN BOVINES.[1]

By E. M. Nighbert, D.V.S.,
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It is not the purpose of this article to project new ideas or discoveries, but rather to bring before you a subject for consideration, that new ideas may be gained.

My attention was first called to this peculiar affection of cows several years ago by Dr. J. D. Nighbert, of Pittsfield, Ill. Since that time I have observed a few cases in my own practice, which will be related later in this article. Puerperal mania of bovines is a nervous disease, maniacal in character, occurring at the time of parturition, immediately after, or from eight to ten hours to six or eight days, or even two weeks, thereafter. The sexual organs of the cow are in action at intervals, and during these intervals of action they diffuse an unusual excitement throughout the nervous system, which is noticed during the catamenial period, occurring at the time of parturition.

Cause. Predisposition, as seen in the nervous Jersey and black Yole, is, of course, hereditary, and mental deviations during gestation render an attack of puerperal mania extremely probable. As to the exact pathology of this peculiar disease, it is not very easy to speak positively. From its occurring immediately or soon after parturition, some have attributed it to disease of the uterine system, as new-growths, retention of the lochia, with decomposition, etc. It is contended that in ordinary cases puerperal mania does not arise from inflammation of the brain and its coverings, as in the uterus, which post-mortem examinations on human subjects tend to demonstrate. I am of the opinion that it is neither a congestion nor inflammation of either the brain or uterus, but it is an auto-intoxication the result of changes in the contents of either the alimentary canal, uterus, or of the lacteal secretion. I find upon investigation that the presence in the blood of abnormal constituents is the most important extrinsic cause of nervous disease, and we may consider the subject under the following headings: (1) Poisons produced within the body, by perverted functions of the organs or tissues (auto-intoxication), or by the action of micro-organisms upon the living fluids and tissues of the body; (2) poisons introduced into the body from without. Now, with the constipation that is always present, and the changes in the milk secretion, and the presence in many cases of retained and decomposed uterine secretions, it tends to bear out the theory given. As I find in looking over veterinary literature very little said of value, I perhaps can make the subject more clear by describing a few cases.

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[1] Read before the eleventh annual meeting of the Missouri Veterinary Medical Association, St. Louis, August 18, 1902.

CASE I.—Jersey cow, aged three or four years, was turned to pasture two days after calving, in apparently good health. In the afternoon, when driven up, she was noticed to be in distress, as if choked. Upon examination I found: Temperature, 102° F. Heart rapid, with weak pulsations. Respirations increased, but not labored. No tympany on palpation over the rumen, but it was doughy and inactive. Suspension of operation of the bowels well marked. No vaginal discharge, and the vulva well drawn up. Mammary gland flabby, and contained no milk. Eyes prominent, with pupils dilated, which gave the animal a wild or frightened appearance. There was rapid movement of the jaws, with excessive flow of saliva. The animal remained standing, with neck bent upon itself, licking the side continually. She was placed in a stall and one ounce of chloral hydrate administered. Two hours later a brisk purgative of epsom salts was administered; two hours later the patient was found resting naturally, and was left for the night. Next morning was found all right.

CASE II.—Jersey cow, seven or eight years old, had given birth to a calf fifteen days previous to attack. The milk was free from colostrum, and it was being fed to a baby, with no bad results, up to two or three days before the attack, when the child was noticed to be restless and fretful, with slight diarrhœa. I was hastily summoned and informed the cow was mad. I found the patient in a frenzied condition, falling upon her knees and licking the ground. She would stand by the fence and lick and bite at the boards. Other symptoms were the same as in Case I. I examined the uterus and found it well contracted, with no growths of any kind, but there was a dark, semigelatinous fluid in the vagina. I washed this out with a creolin solution, ordered a quiet place, and administered chloral hydrate, followed by a physic of salts. Fluid extract of belladonna was administered in small doses at intervals of three hours. After twenty-four hours the patient was discharged. The appetite improved, and the cow did well for two weeks, when the second attack took place. This time I used the chloral and belladonna, with physic, and also washed out the uterus and vagina antiseptically. After two days recovery took place, and the animal remained well. The child suffered no particular inconvenience, and probably the milk from the affected cow was not the cause of the trouble, but it looked as though it might have been.

CASE III.—Holstein cow, five or six years old, which had dropped a calf ten days previous to my call; but the history revealed that the cow had not done well since the time of parturition, showing nervous symptoms, and was delirious at times. She recovered from those symptoms, but there was anorexia, and the patient grew anæmic; and owing to an attack of the nervous symptoms I was hastily called a distance of fifteen miles. Upon my arrival I found the peculiar rabiform symptoms, with other complications. There were well-marked uterine changes, the vagina being loaded with decomposed lochia. I pursued the usual course of treatment until the nervousness was over, after which stimulants were administered, followed later by tonics. The cow apparently did well for two or three weeks, when the distressing symptoms returned. My client was a good nurse, and I prescribed by telephone and had him carry out the usual treatment, and the animal recovered, but was three months completing it.

CASE IV.—Grade cow, weight about 1200 pounds, well nourished, calved two or three days previously. Was first noticed, early in the morning, to be somewhat uneasy and rather excited. Ate a small quantity of feed, and later was turned out in a small pasture lot, and was not seen until the middle of the afternoon, when it was noticed that she kept her head very low, between the front legs, and apparently tried to put the back of her head or poll on the ground by placing her head far back between the front legs. During intervals of quietude she would hold her head in an almost natural position, but kept up a continual champing of the jaws, with an abundant flow of frothy saliva. Pulse somewhat quickened; temperature elevated two or three degrees. Treatment consisted of a good purge of epsom salts and gamboge, followed by one and a half ounces of chloral; then, every two hours, one drachm of the fluid extract of belladonna, until the nervousness subsided. Next morning the appetite returned, and after the effects of the purge had subsided she was put on her usual amount of feed.

CASE V.—Grade shorthorn cow, in good condition, weight about 1000 pounds. Gave birth to her third calf forty-eight hours previously. Owner first noticed her as being somewhat uneasy; wild look out of the eyes, champing of the jaws, and considerable flow of foamy saliva. Every few minutes she would lower her head and lick the inside of her front legs, which were wet with the copious flow of saliva. When an attempt was made to drive her she was inclined to charge the attendant. Pulse and temperature about the same as in Case II. Treatment the same. Recovery in twenty-four hours, though a little dull, perhaps from the effects of medication.

CASE VI.—Grade Jersey cow, weight about nine hundred pounds. Second calf was born twenty-four hours previously. The symptoms were not so well marked as in previous cases. Pupils somewhat dilated; a little excitable. Same peculiar champing of the jaws; not so much inclined to lick the inside of front legs as Case II. Treatment the same as in previous cases. Recovery seemed complete in twenty-four hours.

I wish to say, further, that the puerperal state was normal in all the above cases, delivery was easy, and there was no retention of placenta. The differential diagnosis, I must confess, is puzzling to the beginner, but the characteristic symptoms and the extremely fatal and infectious nature of rabies helps to differentiate that disease, while the sternodecubital position and coma differentiate it from parturient paresis.

ON STENOSIS OF THE DUCT IN THE TEAT OF THE COW. Obstruction in the duct of the teat may depend upon spasmodic contraction of the sphincter, to the presence of cicatrices, to the development of papillomata upon the mucous membrane. Those of the mechanical kind are placed in the lower third of the teat. In all cases the author, Eggmann, operates. If the sphincter is too strong or contracts during milking he makes a crucial incision at the summit of the teat (next to the gland); if it is to remedy cicatricial contraction within the teat he introduces a tenotome with a double edge and cuts freely; if there are papillomata he rotates the instrument. The quarter operated upon has then to be carefully treated; into the lumen of the duct he passes a long thread of catgut provided with a sealing-wax button to prevent its passage into the milk sinus. He then slips on the teat a rubber glove-finger of large size. It is first put on the finger and then rolled up on the teat. After about two days the catgut bougie is not replaced after milking, and the glove finger is left off after three to five days. If the incision into the sphincter is too great and the milk flows away, an artificial sphincter is made by putting on a rubber band. Of course, rigid antisepsis is necessary.—*The Veterinarian*, July, 1902.

DEPARTMENT OF CANINE, FELINE, AND AVIAN MEDICINE AND SURGERY.

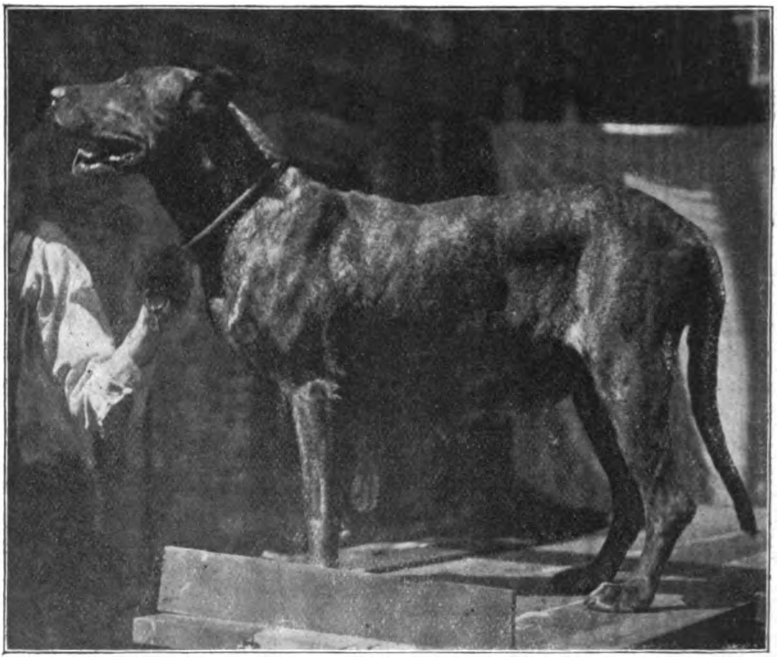
By Cecil French, D.V.S. (McGill and Munich),
WASHINGTON, D. C.

Chronic Galactophoritis in the Bitch. The accompanying picture illustrates a condition I have met with recently which is nowhere described in text-books, though it is one which, on account of its unsightliness, calls for surgical interference.

As will readily be seen, it is a condition of neoplasia limited to one of the pectoral teats. We are all familiar with the hypertrophy of the teats in animals which have nursed numerous offspring, but in this instance the increase in volume of the teat is out of all proportion. Neoplastic growths are not at all uncommon in the mammary gland proper. They may be of innocent or malignant types, and there is every reason to believe that in some instances the former may undergo transformation into the latter. The innocent growths consist of fibroma, myxoma, lipoma, adenoma, or, very often, mixtures of these, and cysts. They are characterized by slow development, freedom from pain, and, after attainment of a certain size, quiescence. The malignant growths comprise sarcoma, carcinoma, and chondroma, the latter often exhibiting osseous elements. They are distinguishable from the former type by their more rapid growth, though they sometimes have periods of quiescence, by extension to neighboring lymphatics and by the pain and emaciation they induce, and by their tendency to ulcerate and undergo generalization.

The commonest of all these varieties is the fibroma, or, more correctly speaking, chronic interstitial fibrosis. Formerly much confusion existed as to its proper classification, and it was not infrequently confounded with adenofibroma; but, inasmuch as the essential element in a fibroma is fibrous tissue, and this type of growth develops as a pericanalicular fibrosis or proliferation and projection of connective tissue round the glandular acini, it is now recognized as pure fibroma. By this process of fibrosis groups of acini become isolated, and these, undergoing compression, lose their glandular structure and appear as "islands" of cells. It was these "islands" of cells which were once mistaken for true neoplastic or adenomatous formations.

In the case which forms the subject of this communication I removed the greatly elongated and enlarged teat and submitted the same to the McGill Pathological Laboratory for microscopic diagnosis. A report was rendered by Dr. A. G. Nicholls, of that institution. This showed the neoplasm in question to be identical with the type of growth so commonly met with in the gland proper—viz., a slowly progressive inflammatory fibrosis, or hyperplasia. The specimen showed some dilatation of the milk-ducts, into the cavities of which much desquamation of cells had taken place. In the connective tissue about the glandular elements was a very extensive extravasation of inflammatory leucocytes, which were very numerous near the ducts, and gradually diminishing in numbers as the distance increased from the centre.



There is a noteworthy point about this growth which would seem to indicate that it may be to a certain extent hereditary, for the animal from which it was taken is a grand-daughter of the stud-dog "Earl of Wurtemburg," her registered number being 66,162, while I have in my possession a bitch of the same breed, No. 69,200, sired by the same dog; and she also has a distinct hyperplasia of the very same teat, though not so pronounced. In other words, this strain of Great Danes may have a predisposition to develop this form of growth.

SELECTIONS.

ALIMENTARY INTOXICATION OF THE PIG. Professor Mathis believes that intoxication by the alimentary tract induced by changed foods is a common cause of death. By-products are largely employed in feeding pigs, such as refuse from the kitchen, potatoes not fit for human consumption, etc. Materials which cause no harm to ruminants, as mouldy corn, cotton cake, have a deleterious action upon the pig. It has been observed that soda present in slops used in washing out kitchen utensils and added to pig-wash has caused the death of pigs. The signs of intoxication are those of gastro-enteritis with nervous symptoms: vomition, tympany, diarrhœa, weakness of the hind quarters, spasm, convulsions. Prognosis is grave. Death may supervene in an hour, or after a few hours; those which live over the day generally recover, but are weak for some time. Treatment consists in giving large enemas repeatedly, and sulphate of soda in linseed tea. Milk and water alone should be allowed until the animals are well.—*Journ. de Med. Vet. et de Zoot. de Lyon; The Veterinarian*, July, 1902.

GOAT'S MILK. It would seem (*Therapeutic Gazette*) that goat's milk, which has for so long a time been rejected on account of its odor and composition, is about to be used much more extensively. Dr. Marfan has shown that in fresh milk there are certain zymoses which are destroyed by heat. The goat's milk does not contain any more casein than woman's milk, and according to Crepin's analysis the amount of casein and butter is about the same as in human milk. Dr. Boissard, obstetrician of the Paris hospitals, published last year a report on the results given by the use of goat's milk, and the latter were favorable. There is a special establishment in Paris where goats from the French and Swiss Alps are kept. The greatest cleanliness is observed, the jugs being washed in boiled water at milking time; the milkmen are obliged to wash their hands with soap; and the bottles and milk-cans are sterilized by being boiled in a solution of carbonate of sodium. It is a well-known fact that the goat does not readily contract tuberculosis, and this, of course, is a guarantee of some importance.—*The Medical Times*, May, 1902; *Modern Medicine*, July, 1902.

TRANSMISSION OF TUBERCULOSIS FROM MAN TO THE PIG. Tempel, the Director of the abattoir at Chemnitz, has established that tuberculosis of man may be transmitted to the pig by castration wounds, for he has seen several cases of primary tuberculosis of the scrotum and cord. He gives here four new cases, three in males, one in female. The cicatrices of castration contained caseous or calcareous tubercles. In one case the lesion formed a string along the cord up to the opening of the vas deferens into the urethra. The four animals had been operated upon by a castrator who for several years had scarcely been able to speak, and whose custom it was to place his bistoury in his mouth during his work. Similar cases have been recorded by John and Hohmuth.—*Zeitsch. f. Fleisch-Hygiene; the Veterinarian*, July, 1902.

VOMEERZIEKTE, OR VOMIT-SICKNESS OF SHEEP. This is a peculiar disease which affects sheep in certain localities of the districts of Hope Town, Carnarvon, Victoria West, Kenhardt, Prieska, Britstown, and portions of the adjoining districts. The general opinion entertained by the farmers respecting the originating cause of this disease, or functional derangement of the stomach, or of the nervous centre which regulates the spasmodic movements involved in the act of vomiting, is that it is due to a certain bush, known as the Vomeerboschje-geigeria passerinoides. This opinion, however, has not as yet been verified by experiment. In 1886 I fed some sheep with quantities of this plant obtained from a farm on which the disease was prevalent at that time, but I failed to produce any symptoms of the disease, and Veterinary Surgeon Dixon repeated this experiment in 1899 with the same negative result. It must be admitted, however, that this plant is generally found in considerable quantity on the veldt, where this disease is prevalent, and it may be that the poison is cumulative in character; hence stock may require to feed upon it for a considerable time before it develops its physiological effects. Another opinion is that this disease is due to the sheep eating a quantity of sand in their efforts to get at the young grass which springs up after the rain in the Karoo districts. This sand, they say, accumulates in the bowels, or rather at the pyloric or bowel end of the stomach, and blocks up the passage. I was, however, unable to confirm this opinion also by numerous post-mortem examinations. The immediate cause of death in the majority of the cases which I examined was bronchopneumonia, or inflammation of the lungs and bronchial tubes. This condition of the lungs is, however, a secondary effect of the primary irritation and the vomiting which supervenes. If the affected sheep are watched, more especially when following the flock, it will be observed that when they cough and vomit, they make an effort at the same time to swallow the food brought up, and a certain portion passes down the trachea into the lungs, where it causes acute inflammatory action. There is no doubt about this, as the portions of the vomited matter can easily be detected in the small bronchial tubes. I have little doubt, also, that this condition is greatly aggravated by driving the sick sheep with the flock, which increases the vomiting and distress very much.

Post-mortem Appearances. I made a post-mortem examination of several sheep in the early stages of the sickness, and found the lungs free from any appearance of irritation, nor was there any obstruction in the stomach or bowels, or accumulation of sand in any part of the intestinal tract.

Symptoms. The affected sheep walks behind the rest of the flock with a dull, tired, dejected appearance, and at short intervals it vomits. This spasmodic action is accompanied by a distressing sickly cough. There is not much food expelled from the mouth during the act of vomition, as the sheep makes an effort to retain it in the mouth and re-swallow it. When very sick the sheep does not attempt to feed, but will lie down almost constantly if left undisturbed.

Cause. There is very little doubt that this peculiar affection is due to some nervous irritant when the animal eats. Whether it is the vomeerboschje at present suspected, or some other plant, or some poisonous fungus that attacks certain plants at certain times of the year, which produces the physiological effects observed, I am unable to say; further experiments are necessary to determine these points.

Treatment. Many farmers successfully give lye, a solution made from the ash obtained from certain saline bushes, and used in the Colony for making soap. I have not experimented with this lye, but I have obtained very good results by giving bicarbonate of soda, a dessertspoonful; laudanum, one or two teaspoonsful; water, half a pint. Repeat this dose morning and evening. As soon as the vomiting has ceased give a dose of purgative medicine to clear out the offending food from the digestive organs, such as three to four ounces of Epsom salts in half a pint of warm water. The affected sheep should not be allowed to follow the flock, but should be kept in a quiet place, and disturbed as little as possible. They do not want to eat, and the stomach is much better to be kept undisturbed by any food until this irritation ceases.—D. HUTCHEON, Col. Veterinary Surgeon, *Agricultural Journal*, July, 1902.

THE PATHOLOGY OF CARCINOMA. H. Ribbert (*Deutsche med. Woch.*, Nov. 21, 1901) is of opinion that carcinomata are not due to a parasite, and gives his reasons for coming to this conclusion. He says that the production of carcinoma is supposed to depend on some stimulus which causes an overgrowth of cells of the epithelium.

This stimulus can only call forth changes of a character which are already present, and can never produce new qualities. There is no reason, however, to presuppose that this stimulus takes the form of a parasite. The parasitic theory claims that not only is the growth caused by the organism, but that its further development depends on the continued activity of the same. The process would correspond to a kind of symbiosis in which the living causal agent can only vegetate in epithelial cells. This would mean that the agent would damage the cells; but how a damaged cell would produce cell proliferation and not degenerative changes he cannot imagine. The term "carcinomatous degeneration" is clearly a misnomer. He points out that the parasite, once having attacked a cell, must produce its effect on that kind of cell only, and, in fact, be incapable of existing in any other cell. There would, therefore, have to be as many species of parasites as there are different kinds of cells. It is difficult to believe that this can in fact be so. Again, he points out a difficulty for the parasitic theory by saying that as soon as the original point of infection of the cancerous process is overstepped all further growth takes place solely from the cells already composing the cancer. According to the theory, other cells of the same histological character would have to be continually infected. He thinks that when the tumor grows in the immediate neighborhood of cells of the same character, if it depended on a parasitic invasion, these neighboring cells must of necessity be also invaded; but this, in fact, does not take place. He compares the pathological characters of a new-growth with those of an inflammatory growth, and claims from the comparison that the former begins as an inflammatory lesion of the connective tissue. Parasites could produce such a lesion, but they could not call forth the cell proliferation, which he explains mechanically. After following Czerny's arguments, and attempting to meet them in the light of his non-parasitic ideas, he concludes by disputing Behla's statements, that cancer is an infective process and that the increase of the disease can only be explained in this way, by stating that he doubts whether the increase actually is taking place; he considers that faulty diagnosis without the help of necropsies has much to answer for, and, even if there were a real increase, this might be explained by faulty hygienic conditions, etc., without the interpolation of parasites.—*British Medical Journal,* March 1, 1902; *Veterinary Journal,* May, 1902.

BACTERIAL CONTAMINATION OF MILK. In order to determine the degree to which milk is necessarily contaminated during milking, and the extent of bacteriological growth which occurs during transit from the dairy to the city, Dr. W. H. Park, of New York (*Journal of Hygiene,* July, 1901, p. 391), undertook a series of investigations which yielded most striking and important results, which indicate that milk with far less bacterial contamination than is commonly the case can be supplied without appreciable increase of expense to the farmer and shipper. The milk of large cities comes necessarily from a wide extent of country, and part of it, at least, is, on arrival, already from twenty-four to forty-eight hours old, during which time the original bacterial content has enormously increased. One of the influences which determine the number of bacteria in the milk of the healthy cows, cleanliness in procuring, the degree to which it is cooled, and the length of time it is kept can be almost completely controlled. Reference is made to the inexcusable lack of cleanliness in the methods of procuring milk, and of care in cooling and keeping it during transportation, and to the unnecessary delay in shipping.

Milk obtained from cows where every reasonable means was taken to insure cleanliness, cooled within an hour to 45° F., and subsequently kept at that temperature, yielded after forty-eight hours on an average less than 11,000 bacteria per cubic centimetre. Taken during winter in well-ventilated, fairly clean, but dusty barns, and cooled within two hours to 45° F., the visible dirt having been cleaned off the hair of the udder; the milker's hands having been wiped off, but not washed; the milk pails and cans being clean, but the straining cloths dusty, it averaged, after forty-eight hours, 75,000 bacteria per cubic centimetre. Taken from more or less dirty cows stalled in ordinary barns, the teats having been cleaned slightly in the usual way by running the unwashed hands over them once before milking, it averaged, after forty-eight hours in winter, and in warm weather, respectively, 210,000 and 680,000 bacteria per cubic centimetre. Twenty samples of ordinary city milk taken immediately on arrival, many of them having been transported over 200 miles, yielded from 52,000 to 35,200,000 bacteria per cubic centimetre. Milk, as sold in the shops, yielded the following average figures: From the poorer tenement districts in midwinter, 1,977,692; in September, 15,163,600. From the more well-to-do districts in midwinter, 327,500; in September, 1,061,400. The influence of temperature was well shown by the results obtained on allowing portions of the same specimen to stand at different temperatures. Kept for twenty-four hours at temperatures below 50° F., no marked change occurred in the number of bacteria (3000) originally present per cubic centimetre; but at higher temperatures most astonishing growths occurred. Thus, at 60° F., 180,000; at 68° F., 450,000; at 86° F., 1,400,000,000, and at 94° F., no less than 25,000,000,000 per cubic centimetre. At the end of forty-eight hours the specimen kept at 60° F. had increased its bacterial content from 180,000 to 28,000,000, and that at 68° F. from 450,000 to 25,000,000,000. Those kept at the lower temperatures had not materially changed.

Park concludes that the most deleterious changes which occur in milk are not those due to ordinary adulteration, but are those produced by the multiplication of bacteria; and holds that it is the duty of health authorities to prevent the sale of milk rendered unfit for use through the bacteria and their products, and gradually to force the farmers and milkmen to use cleanliness, cold, and dispatch in the handling of their milk. As to standards, he believes in beginning with one of 500,000 for milk on entrance, and 1,000,000 on delivery. These figures are conceded to be ten times as high as milk should show, but by the enforcement of such a standard the farmer would receive a compulsory education in the necessity of preventing the presence and multiplication of bacteria.—*American Journal of the Medical Sciences,* May, 1902.

INFLUENCE OF ALCOHOL UPON THE EVOLUTION OF TUBERCULOSIS. Roos separated six guinea-pigs inoculated with tuberculosis into two groups. Three received the usual diet; the other three received, in addition, 25 c.c. of wine per kilo of weight daily. The average duration of the disease was ninety-four days for the former and ninety-five days for the latter.

Alcohol in the form of wine, even in large doses, did not seem to hasten the development of experimental tuberculosis in the guinea-pig.—*Rec. de Med. Vet.*

NEW CANINE MEDICINES.

BISMUTH SALICYLAS. This compound, obtained by treating nitrate of bismuth with a solution of sodium salicylate, is a white or nearly white powder, insoluble in water, alcohol, or glycerin, has been employed in human practice for some time in the various forms of diarrhœa and vomiting dependent upon gastric irritation, diarrhœa of typhoid, and of gastric intestinal catarrh. In canine practice it was first introduced by Mr. F. J. Taylor, M.R.C.V.S., Mosely, Birmingham, who employed it with considerable success in the epidemic of diarrhœa and vomiting in dogs supervening on attacks of influenza. From his clinical notes he found it invaluable in checking the relaxation and gastric vomiting, acting as an intestinal sedative and disinfectant to the alimentary tract. Mr. Taylor generally administers the drug in doses of 7 grains in small gelatin capsules, which are very easily given. His clinical reports of the drug have been confirmed by Mr. Frank Leigh, F.R.C.V.S., Bristol, and various other eminent canine practitioners. Some have administered it in the form of a mixture, suspended with mucilage or tragacanth.—J. Dowling Adams, in the *Veterinary Journal*, May, 1902.

ANTHELMINTICS. *Capsules of Oil of Male Fern, with Turpentine.* These were first suggested to me some few years since by Mr. William Shipley, Jr., F.R.C.V.S., of Yarmouth, and are known among canine practitioners as "Shipley's Vermifuge Capsules," and, judging from the reports of numerous veterinarians, I don't know of any vermifuge that has given such entire satisfaction for the expulsion of intestinal worms (tæniæ of Lumbrici). Each capsule contains five minims of the oil of male fern and five minims of turpentine. Mr. John Cartwright, M.R.C.V.S., of Wolverhampton, has used these capsules in his extensive canine practice ever since their introduction, and has found them invaluable for the expelling of the different species of entozoa to which dogs are so prone. Like all anthelmintics, there are certain general rules which govern the administration of these capsules and which should not be lost sight of. Let the alimentary canal be as empty as possible, so that the combination of the drugs may act with the greatest force upon the entozoa. For this reason they are best administered in the morning and repeated for three or four mornings, and followed with a dose of castor oil.—*Ibid.*

REPORTS OF CASES.

OBSERVATIONS ON THE TREATMENT OF SCRATCHES, MANGE, ETC.

BY G. M. BOON, V.S.,
SOUTHWICK, MASS.

BAY mare, nine years old, had had scratches for several years, until it became a chronic condition. The owner claimed that everything had been tried in vain, and several veterinarians, after treating her for some time, gave her up as incurable. July 13 the owner called at my office with her. At that time the disease had spread up the legs to the tarsometatarsal articulation, and was very severe, with the characteristic oily discharge over the leg (the near hind), desquamation of the epidermis, and some spots of ulceration. To say the least, the prognosis looked very unfavorable, but I decided to treat her, and made up the following liniment: Epicarin and glycerin, each 2 drachms; wood alcohol, 2 ounces. To be applied once daily with a soft brush, after thoroughly cleansing.

Internally I ordered arsenious acid, 72 grains. M., div., pulv. No. 24. Sig. One powder three times daily. Potassi nitras, 8 ounces. Sig. Two teaspoonfuls three times daily in drinking water.

July 17th the owner drove the horse to my office, and I was much surprised to find a great improvement. The characteristic oily discharge had completely disappeared, the epidermis was quite dry, the ulcers had healed, and the swelling was gone. I ordered the same treatment continued. August 10 the owner called again, and I hardly knew the horse, owing to the marked improvement. The secretions were entirely checked, the hair was growing nicely, and there was no swelling of the leg; in fact, everything was in a perfectly healthy condition. I prescribed arsenious acid internally, in 3-grain doses, morning and evening, for several weeks.

At this time the owner brought a well-bred cocker spaniel puppy with him, about which he and his family were terribly upset, as they thought he had been poisoned. Its mouth, nose, eyes, etc., were terribly swollen and covered with pustules, which a low-power microscope showed to contain acarus demodex folliculorum. I informed the owner that it was a case of follicular mange, and gave a somewhat guarded prognosis. As he desired me to treat it, I made up a liniment identical with the one used for his horse, and after opening all the pustules with a fine bistoury, applied the liniment with a soft brush, and ordered him to do likewise every day for three days; then every other day until he called again, August 17th. At this time the dog was greatly improved and continued to improve, making a complete recovery in two weeks.

Fox terrier, three years old. Diagnosis: Sarcoptic mange, well developed, which I verified by finding the acarus sarcoptis communis with the aid of the microscope. The treatment in this case was identical with that used in the foregoing cases, with complete recovery in two weeks.

From my observations epicarin seems to act as a powerful astringent and alterative in such conditions of chronic scratches or grease, while in mange it is a specific, destroying the parasites (acarus sarcoptis communis, and sarcoptis demodex folliculorum), and quickly healing the lesions produced by them.

The success I have had with the remedy has prompted me to write the above for the benefit of fellow-members of the profession who have not yet tried this treatment. By its use in mange we will avoid incurring the ill feeling of clients, who, after spending their money, often find that their dog is no better, and, becoming disgusted, sacrifice the life of their most valued animal friend.

Since the writing of this article I have treated several cases of mange in cattle and three in sheep successfully with the same liniment.

The will of Madame Claire Louise Beauclaire, a rich widow of Toms, leaves about $2000 toward the establishment of a home for ownerless cats. Madame Beauclaire had a number of pet cats, and these are to have the best accommodations in the home she would have started.

"Collecting dogs" are just now popular in England for gathering money for charitable purposes. The Royal Berks Hospital has recently been enriched to the extent of nearly $50 in 2574 coins, which Prince, a fox terrier, collected at Wokingham. Prince is the property of a local public house keeper, whose customers amuse themselves by hiding a coin, which the intelligent terrier speedily finds, when it is transferred to a box, where it remains until the times comes for the donations to be handed over to the hospital's treasurer. It is said that a collecting dog at Paddington railway station in London has during the service collected over $3750 for charity, and still continues his good work.

EDITORIALS.

THE FINAL OVERTHROW OF KOCH'S THEORY RESPECTING THE NON-COMMUNICABILITY OF BOVINE TUBERCULOSIS TO HUMAN BEINGS.

KOCH's labored effort to prove that bovine tuberculosis cannot be communicated to human beings was practically wholly based upon the experiments from which he claimed to have demonstrated that human tuberculosis could not be communicated to animals of the bovine species. As has been so often pointed out, the facts which he presented were not conclusive, if proved; for it might easily be possible that bovine tuberculosis could be communicated to human beings, even though human tuberculosis could not be communicated to calves; but Arloing, a recognized authority, has come forward (*Bulletin de l'Academie de Medecine and Presse Medicale*) with a carefully studied series of observations which show conclusively that human tuberculosis may be communicated to various species of lower animals. In his experiments he produced tuberculosis in twenty-three animals, all of which were pronounced by Koch to be non-tubercularizable by infection from human beings. Of these animals, there were three calves, six sheep, ten goats, and three donkeys. Arloing further shows by careful analysis of the observations of Koch that seven out of thirty-four animals inoculated by him with human virus were actually infected. Every sanitarian will be glad to welcome this thoroughgoing exposure of Koch's most ill-advised and mischievous announcement.—*Modern Medicine*, July, 1902.

THE PRESIDENT'S ADDRESS.

IT has been many years since an address by its chief officer has been so salient with suggestions and recommendations as the one presented to the American Veterinary Medical Association at Minneapolis. An effort was made during the sessions of the Convention to have it especially referred to the Executive Committee for consideration, but that body was so busy wasting its own and the Convention's time over some legal technicalities (in which field they have no status or place) over a worse than worthless member that they could not find time to take up these matters seriously.

While we cannot fully agree with all the recommendations of the President, we are in hearty accord with his views on many important questions so ably discussed in his excellent address, and we sincerely trust that the newly appointed Executive Board will find them worthy of a special session of that body, and not be allowed to slumber until September, 1903, when they must of necessity go over another year for execution. We trust that another year this body will not be affected with Morrisphobia that so completely caused a condition of innocuous desuetude to hang as a pall over its proper sphere of work for 1902.

JOHN FAUST, V.S.

THE death of John Faust removes from the ranks of the American Veterinary Medical Association one of the few remaining self-made veterinarians who made the early years of the profession rich in progress and honor by their steadfastness of purpose and a rugged honesty of character that made possible the growth and progress of later years.

Those who knew John Faust well and who mingled with him in association circles and in the walks of professional and social intercourse will ever recall the sturdy type of honest manhood that he represented. In the field of discussion his sincerity of purpose was a marked characteristic, and his unbounded sympathies were often expressed by strong emotions that were childlike in their tenderness. While the early trials attending his efforts to obtain a veterinary education were many and such that only a few men would have withstood, he had learned well the lessons along these lines, and planned for the more complete education of his sons by diligence and the toil of his own lifework. This body of men in our profession are fast passing away, but they have done a good work, lived honored lives, and bequeathed to those who have followed them a better field, a stronger profession, and a higher public regard for our worth.

NECROLOGY.

JOHN FAUST, V. S. After a long illness, Dr. John Faust, one of the oldest and most highly esteemed veterinarians, passed away at his home in Poughkeepsie, N. Y. About ten years ago Dr. Faust received an injury to his spine as the result of a railroad accident, and his death was indirectly due to this cause. Several times it was thought he was on the road to recovery, but about a year ago he began to fail, and paralysis followed. He was confined to his bed about two months before his death.

The deceased was born in Hesse-Cassel, Germany, in 1835, and came to this country in 1852. He learned the cooper's trade, and in 1859 came to Poughkeepsie with his brothers, Tobias and Otto, and started in business under the name of John Faust & Son. In 1875 the partnership was dissolved, and Dr. Faust took up the study of veterinary surgery and passed his examination before the board of the New York Veterinary Society in 1881, when he received the degree of V. S.

Dr. Faust was a member of the American Veterinary Medical Association, and for several years served by appointment as cattle inspector for tuberculosis in this State. He received the credit of being the first to vaccinate against anthrax fever. He served with much credit as a member of the Board of Health for several years.

JOSEPH F. LENNON, M.D.C., of Joliet, Illinois, died on August 4th, at the age of thirty-six, from an operation for liver trouble of long standing. Dr. Lennon was a graduate of the Chicago Veterinary College, class of 1891, and had built up a large practice at Joliet.

NOAH CRESSY, M.D., Ph.D., D.V.S., died suddenly at his home in Hartford, Conn., August 31st, from kidney trouble. Dr. Cressy was sixty-three years old, a graduate of Pittsfield Medical College, and of the Montreal Veterinary College, class of 1878. At the time of death was editor of the *Connecticut Farmer*.

Dr. H. P. Kauffman, of Ashland, Pa., has removed to Shamokin, Pa., where he will continue the practice of his profession.

NEW PUBLICATIONS.

The Quarterly Bulletin of the Chicago Veterinary College, published in the interest of the college, has just made its initial bow to the public. It will be continued through the year and sent out among the school's graduates and the profession at large, with a view of promoting the welfare of the college. It will be edited and contributed to by the teaching staff of the college, and give to the profession at large a better knowledge of the work and teaching at that institution. Almost its entire corps of instructors contribute something to the first number. A special announcement of the post-graduate course is added to the first number.

A. V. M. A. ECHOES.

SEVERAL Eastern veterinarians on their return from the convention stopped for a day at Niagara Falls, and they tell strange stories of a visit to the "Burning Spring" on the Canadian side. The Canucks are not slow.

State Veterinarian Pearson, of Pennsylvania, not satisfied with the joyous opportunities afforded by our Minnesota colleagues, remained for several days after the convention to visit and inspect many other attractions of the "Gopher State."

Dr. W. L. Williams, of Ithaca, N. Y., was among those who joined the "JOURNAL Special" en route to Chicago.

New Jersey's coterie of prominent veterinarians, guided by Treasurer Lowe, of the American Veterinary Medical Association, after journeying to Chicago with the JOURNAL'S special party, completed their journey via the Michigan Central. Drs. Smith, of Jersey City, and Glennon, of Newark, were among the number from the "Jersey Blue State."

At Buffalo the JOURNAL'S special party was added to by Drs. William Dougherty, of Baltimore, Md., and J. C. Foelker, of Allentown, Pa.

At Sayre, New York State, Dr. C. J. Marshall and wife, of Philadelphia, Pa., joined the "JOURNAL Special."

Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, started from Philadelphia, Pa., and journeyed to Minneapolis with the JOURNAL'S party.

From far-away Arizona came that genial aggressive member of the profession and Territorial veterinarian, Dr. J. C. Norton, to join the "JOURNAL Special" at Chicago over the Burlington route to Minneapolis.

The Chicago special party over the Chicago, Milwaukee and St. Paul were so overfed at the sumptuous repast spread that they arrived some five hours late as a result of their somnolent indulgences.

The Canadian silver souvenir of the Chicago special party is said to have been indirectly an agent in delaying the arrival of the party, owing to soporific influences produced.

SOCIETY PROCEEDINGS.

THE MISSOURI VETERINARY MEDICAL ASSOCIATION.

THE eleventh annual meeting of this Association was called to order at 9 A.M., August 18, 1902, in the assembly hall of the Board of Education Building, northwest corner of Ninth and Locust Streets, St. Louis, Mo., by the Vice-President, Dr. Charles Doerrie, of Boonville, the President, Dr. J. W. Conaway, being absent on account of ill health.

The following members and visiting veterinarians were present: Drs. F. F. Brown, H. Bradley, C. W. Crowley, Charles Ellis, F. A. Goodbody, L. M. Klutts, B. F. Kaupp, R. A. Kammerer, D. F. Luckey, T. J. Menestrina, S. Stewart, A. Darling, H. B. Piatt, Ray. J. Stanclift, 8th U. S. Cavalry, J. M. Watson, W. H. Meadors, T. W. Scott, H. Timmermann, D. G. Painter, R. J. Sollberger, F. W. Hopkins, N. C. Powell, F. L. Combs, R. F. Eagle, J. J. Hougendobler, H. J. Hammerstein, D. C. Burnett, T. B. Pote, W. F. Heyde, and U. G. Houck.

The minutes of the previous meeting, held in Kansas City, October 22 and 23, 1901, were read and approved.

Under communications and correspondence, the Secretary read a letter from Dr. W. Horace Hoskins, of Philadelphia, Pa., in regard to attending the National Veterinary Association, to be held in Minneapolis, September 2, 3, and 4, 1902; also, a letter from Dr. E. Brainerd, of Memphis, Mo., sending his regrets of his inability to attend.

Vice-President Dr. Charles Doerrie appointed Drs. D. F. Luckey and L. M. Klutts on the Committee on Elections in the place of Drs. W. E. Martin and F. W. O'Brien, who were absent. Under the head of applications for membership the names of the following veterinarians were presented: Drs. A. Darling, St. Louis; Oscar Stuart, Florida; William McEachran, Louisiana; James Mahon, Carrollton; E. Brainerd, Memphis; F. A. Goodbody, St. Louis, and A. Trickett, Kansas City. Dr. D. F. Luckey moved that Dr. R. A. Kammerer cast the vote of the Association for the above applicants to become members. The motion was seconded and carried, and Dr. Kammerer cast the vote of the Association.

The election of officers was next in order. Dr. S. Stewart placed in nomination the name of Dr. D. F. Luckey, of Columbia, for President for the ensuing year. A motion was then made, which was seconded and carried, that Dr. Luckey be elected by acclamation. Dr. Charles Ellis then placed in nomination the name of Dr. R. A. Kammerer, of St. Louis, for Vice-President. Dr. H. B. Piatt made a motion that the Secretary be instructed to cast the vote of the Association for Dr. Kammerer for Vice-President for the coming year; motion seconded and carried. Dr. D. F. Luckey placed in nomination the name of Dr. B. F. Kaupp, of Kansas City, for re-election for Secretary-Treasurer for the coming year. A motion was made, seconded, and carried that the Secretary be re-elected by acclamation. The Secretary then read a report for the Secretary and Treasurer for the past year. Dr. S. Stewart made a motion that the reports be accepted as read, which was seconded and carried.

Dr. D. F. Luckey then gave a good and interesting address upon the subject of State veterinary legislation, pointing out some of the obstacles in the way of securing needed veterinary legislation in the State of Missouri. Moved by Dr. S. Stewart, that the President appoint a committee of three on State veterinary legislation, and to make an effort to secure needed legislation during the next session of the State Legislature. The motion was seconded by Dr. Charles Ellis and carried. It was then moved, seconded, and carried that the meeting adjourn for luncheon.

At 2 P.M. the meeting was called to order by the Vice-President, Dr. Doerrie, when the following programme was presented: "Puerperal Mania. in Bovines," by Dr. E. M. Nighbert; "Complications in Colic," by Dr. S. Stewart. Dr. Stewart went thoroughly into the subject, and the paper brought out a good discussion. Among those that entered into the discussion were Drs. A. Darling, L. M. Klutts, D. F. Luckey, Charles Ellis, and others. The next paper on the programme was "My Practical Experience Since Our Last Meeting," by Dr. L. M. Klutts, which paper was interesting and brought out a good discussion. Following these papers a number of interesting cases were reported. At 6 o'clock it was moved, seconded, and carried that the meeting adjourn to the northeast corner of Sixth and Chestnut Streets, where the veterinarians present were royally banqueted by the veterinarians of St. Louis.

At 8 o'clock P.M. the meeting was again called to order, when the following programme was presented: "Differential Diagnosis of Actinomycosis and Tuberculosis," by Dr. R. F. Eagle. After the reading of this valuable paper a motion was made by Dr. S. Stewart, which was seconded and carried, that the courtesies of the floor be extended to the visiting veterinarians. After a thorough discussion of this paper the following were presented: "Poisoning by Nightshade," by Dr. F. F. Brown; "Caseous Lymphadenitis in Sheep," by Dr. S. L. Shaw. Following these papers many interesting cases were reported, after which Dr. Charles Ellis, of St. Louis, moved that the following resolutions be adopted, which was seconded by Dr. A. Darling, and carried:

WHEREAS, The A. V. M. A. has established the precedent of holding meetings in cities where national and international fairs are held; and

WHEREAS, An international fair will be held in St. Louis in 1904; and

WHEREAS, No meeting of the A. V. M. A. has been held in the State of Missouri; and

WHEREAS, The foregoing circumstances make St. Louis the logical city for holding the Association's meeting in 1904; therefore, be it

Resolved, That the Missouri Veterinary Medical Association now in session invites the American Veterinary Medical Association to meet in St. Louis in 1904.

A motion was then made by Dr. D. F. Luckey, which was seconded by Dr. Charles Ellis and carried, that the Association extend a vote of thanks to Dr. R. F. Eagle for his valuable paper.

It was moved, seconded, and carried that the next meeting be held in Windsor, Mo., in 1903, at such time as the officers of the Association and Executive Committee may decide.

A motion was made by Dr. S. Stewart, which was seconded and carried, that a vote of thanks be extended to the local committee and other veterinarians of St. Louis for their hospitality.

At 11 o'clock, by a motion which was seconded and carried, the meeting adjourned to meet at Manchester Avenue and King's Highway, at 9 A.M., August 19th.

On Tuesday, August 19th, at 9 A.M., a clinic was held at Dr. R. A. Kammerer's hospital. The excellencies of the Kansas City Veterinary College operating-table were demonstrated by Drs. F. F. Brown and S. Stewart. Many operations were performed, which were participated in by Drs. D. F. Luckey, Ray. J. Stanclift, F. F. Brown, L. M. Klutts, and others. At 1 o'clock the clinic adjourned to luncheon, which was given by the St. Louis veterinarians, after which the afternoon was spent in examining interesting cases presented at the clinic.

The meeting was then adjourned to meet in Windsor, Mo., in 1903.

B. F. KAUPP,
Secretary.

THIRTY-NINTH ANNUAL MEETING OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION.

Minneapolis, Minnesota, September 2 *to* 5, 1902.

SOME THOUGHTS—MINNEAPOLIS MEETING.

THE official records show an attendance of about one hundred and twenty-five members, which is somewhat in excess of the Atlantic City meeting; so, in point of numbers, the Minneapolis meeting was a success. The papers and discussions were fully up to the standard of past performances. It should be the ambition of all the members to have presented to the meetings papers of high merit, and to keep the discussions free from irrelevant and worthless matter. We should aim to make the printed proceedings of the highest possible merit, for the Association, and in turn the profession, will be judged largely by the character of the printed proceedings of the annual meetings.

The members were not prompt in getting into the convention hall so that the meetings might begin on schedule time. The entire time of the meeting provided for by the programme could easily be utilized in attending to the business and presenting the literary part of the programme. When we get behind time everyone gets nervous, and many do not enter into the discussion because of lack of time. The forenoon session of the first day was abandoned because a large number of members were delayed in their arrival owing to the lateness of the train. I am sure that these members, as well as others who did not suffer the misfortune of such an annoying delay, have fully resolved that on subsequent occasions they will leave home at a time sufficiently in advance of the meeting to permit of their arrival in due time, even if their train is several hours behind time. This is a praiseworthy resolve.

The sessions of the Executive Committee, held during the meeting, are usually extended considerably beyond the time set for opening the convention, and in this way the whole convention body is kept from beginning its work. These delays could be prevented if the Executive Committee would, whenever possible, hold its sessions in the evening, or, if it must have a morning session, by beginning on time and adjourning at the time scheduled for opening the session of the convention. This is a reform that is much needed.

The abolition of smoking in the convention hall during the sessions of our Minneapolis meeting was a very commendable act, and one which is doubtless approved by the smokers themselves.

The convention halls used for some of our recent meetings have not been as well adapted for the purpose as is desirable. The success of the meeting depends largely upon the kind of hall we have. The members will not remain in a disagreeable place, and visitors will not venture into it. It would be better, if necessary, to pay a moderate sum for the proper kind of room than to accept an undesirable one free of cost. The committee-in-charge should, at future meetings, make sure to obtain a suitable hall. The usual hotel parlor or ordinary is in most cases undesirable. The room should be remote from street or other noises, should be well ventilated and cool, lighted from *both* sides or overhead, and not from in front or behind, and be large enough. Better that it should be too large than too small. If possible, the place of entrance should be from the centre behind and not from one corner, for it is well known that, if the entrance is at one corner, people will crowd about the entrance and will not move over to the far side, even if there are vacant seats there.

Our meetings are becoming better every year, and if each member will begin as soon as one meeting is over to make plans whereby he can enhance the excellence of the next one, we will be assured of a rapid and healthy growth of our organization. With a membership of over five hundred active workers there is no reason why the American Veterinary Medical Association should not take high rank among the scientific bodies of America. It should be our aim to see that it does.

JOHN J. REPP,
Secretary A. V. M. A.

ATTENDANCE LIST.

The following members and visitors were present during the various sessions of the American Veterinary Medical Association:

Members. Drs. Adams, Annand, Ackerman, Anderson, F. E.; Abele, Ainsworth, Baker, A. H.; Beckett, Behnke, Bell, R. R.; Brenton, Butler, G. W.; Butler, J. S.; Butler, Tait; Brimhall, Burnham, Cooley, Cotton, C. E.; Cotton, T. B.; Crawford, Dalrymple, Dougherty, Dunphy, Ellis, Charles; Fischer, Gay, Gibson, Glennon, Gohn, Gould, J. N.; Gould, J. W.; Harris, Heck, Hernsheim, Hinman, Hoskins, Hughes, Hunter, Jakeman, Jewell, Johnson, Jopling, Kelly, Wm. H.; Knight, Knowles, Leech, Lowe, Wm. H.; Loveberry, Lyford, Lyman, R. P.; McInnes, McKenzie, McNeall, Marshall, Martin, J. W.; Mayo, Merillat, Monsarrat, Moore, R. C.; Quitman, Norton, Pearson, Peters, A. T.; Piatt, Pierce, B. D.; Rayen, Ranck, Repp, Reynolds, Robertson, J. L.; Robinson, Ruhl, Ryan, Ryder, Salmon, Schaefer, Schwarzkopf, Smith, F. E.; Schmitt, Shepard, Sprague, Stanclift, Stewart, Stringer, Thomas, Torrance, Walrod, Ward, Winchester, Witte, White, G. R.; Whitbeck, Williams, Young, Youngberg—95.

Members Reinstated. C. A. Clinton, A. A. Keys—2.

Members-elect. Drs. A. Bostrum, M. V. Byers, J. W. Cook, S. A. Coxe, J. H. Crawford, John H. Gould, J. W. Haxby, W. S. Henderson, C. J. Hinckley, W. C. Holden, F. A. Ilstrup, H. Jensen, F. E. Lambrecht, G. Lamee, R. La Pointe, H. C. Lyon, W. A. McClanahan, D. M. McDonald, G. McGillivary, J. H. McLeod, Peter Malcolm, Edward L. Moore, H. F. Palmer, Calvert H. Playdon, H. A. Presler, Richard Price, F. A. Rich, C. J. Rhodes, J. G. Rutherford, George A. Scott, J. A. Scott, L. U. Shipley, S. P. Smith, C. E. Stewart, Arthur Trickett—35.

Delegate. Pennsylvania State Veterinary Medical Association, Dr. J. C. Foelker, Allentown.

Visiting Veterinarians. Illinois: F. H. Ames, Canton; W. H. Welch, Lexington; F. C. Grayson, Paxton; J. T. Nattress, Delavan.

Iowa: B. Harmon, Decorah; W. R. Fullerton, Dubuque; H. J. Hagerty, Dubuque; H. L. Stewart, Lacona; F. M. Roys, Manning; J. J. Richardson, Marcus; H. M. Gillian, Mason City; M. F. Leffingwell, Northwood; N. A. Kippen, Riceville; C. E. Narey, Spirit Lake.

Kansas: E. F. McGraw, Fort Scott.

Massachusetts: William M. Simpson, Malden; William Simpson, Springfield.

Minnesota: T. Falconer, Alexandria; M. S. Whitcomb, Austin; J. J. McLaughlin, Blue Earth; Wm. Soneral, Cambridge; R. Kjerner, Chatfield; H. Langerin, Crookston; J. J. Findlay, Duluth; John McKay, Duluth; L. Hay, Faribault; C. S. Shore, Lake City; H. C. Peters, Litchfield; M. J. Sexton, Minneapolis; J. W. Golden, Redwood Falls; J. Butters, Renville; John P. Graff, New Ulm; E. T. Frank, Warren; C. W. Bigarel, Wendell; Oscar Rydell, Wheaton.

Michigan: D. S. De Wolf, Hart; W. W. Conkey, Grand Rapids.

New Jersey: W. Runge, Newark.

North Dakota: W. S. Stinson, Crystal.

Ohio: Gilbert Hess, Ashland; P. A. Dillahunt, Springfield.

Ontario: Thomas Thacher, Renfreu.

South Dakota: J. P. Foster, Selby.

Wisconsin: S. Beattie, Madison; H. L. Russell, Madison; B. L. Clark, Monticello; C. E. Evans, Racine; D. Roberts, Waukesha; E. D. Roberts, Janesville—48.

Lady Visitors. Illinois: Mrs. A. H. Baker, Chicago; Mrs. W. W. Dixon, Chicago; Mrs. A. Eger, Chicago; Mrs. Joseph Hughes, Chicago; Mrs. J. F. Ryan, Chicago; Mrs. H. C. Peters, Litchfield.

Indiana: Mrs. C. B. Ainsworth, Greensburg.

Iowa: Mrs. J. I. Gibson, Denison; Mrs. Wm. A. Heck, Maquoketa; Mrs. C. J. Hinckley, Odebolt; Mrs. G. A. Johnson, Sioux City.

Kentucky: Mrs. D. A. Piatt, Lexington; Miss Piatt, Lexington.

Manitoba: Mrs. F. Torrance, Winnepeg.

Massachusetts: Mrs. A. M. Haley, Reading.

Michigan: Mrs. S. Brenton, Detroit; Mrs. Horace M. Gohn, St. Johns.

Minnesota: Mrs. A. Youngberg, Detroit; Miss A. May, Laseur; Mrs. H. C. Peters, Litchfield; Mrs. J. G. Annand, Mrs. S. D. Brimhall, Mrs. C. E. Cotton, Mrs. C. C. Lyford, and Miss Lyford, of Minneapolis; Miss Nellie Carroll, St. Anthony Park; Mrs. M. H. Reynolds, St. Anthony Park; Miss Florence Burnham, Stillwater; Mrs. E. T. Frank, Warren; Mrs. J.

A. Scott, Waverly; Mrs. G. Ed. Leech, Winona; Mrs. J. N. Gould, Worthington.

Missouri: Mrs. C. H. Jewell, Kansas City; Mrs. S. Stewart, Kansas City.

Montana: Mrs. M. E. Knowles, Helena; Mrs. O. Schwartzkopf, Fort Assiniboin.

Nebraska: Mrs. A. T. Peters, Misses Antoinette and Florence Peters, and Mrs. W. A. Thomas, of Lincoln; Mrs. V. Schaefer, Tekamah.

New York: Mrs. E. B. Ackerman and Mrs. R. R. Bell, Brooklyn; Mrs. J. E. Ryder, New York City.

Ohio: Mrs. Flora A Cooley, Cleveland; Mrs. Paul Fischer, Columbus; Mrs. T. Bent Cotton, Mt. Vernon.

Pennsylvania: Mrs. Emma Brooks, Mrs. W. H. Hoskins, Mrs. C. J. Marshall, and Miss Pearson, of Philadelphia.

South Dakota: Mrs. J. P. Foster, Shelby.

Tennessee: Mrs. W. C. Rayen, Nashville.

Wisconsin: Mrs. G. W. Butler, Eau Claire; Mrs. D. Roberts, Waukesha.

Other Visitors. District of Columbia: E. V. Wilcox, Washington.

Illinois: J. C. Clinton, W. W. Dixon, Alex. Eger, V. E. Kover, D. E. Osgoaby, and J. L. Schmidt, of Chicago.

Manitoba: J. B. Leeson, M.D., Brandon.

Minnesota: J. O. Comes, V. M. Connell, M.D., and J. C. Smith, of Minneapolis; Robert S. Taylor, F. D. Ketchum, and B. W. Kirby, of St. Paul; Jared Burton, Wheaton.

Missouri: E. Lee, Chillicothe.

Nebraska: J. C. Boyd, Omaha.

Pennsylvania: H. P. Brooks, Philadelphia.

Wisconsin: Master Butler, Eau Claire; F. E. Perkins, Ellsworth.

Iowa: Master Joe Heck, Maquoketa.

New Members: M. C. Baker, 194 Milton St., Montreal, Quebec; J. W. Beckwith, Shullsburg, Wisconsin; A. Bostrum, Minden, Nebraska; Samuel Burrows, Veterinary Hospital, U. of P., Philadelphia, Pa.; Fred F. Bushnell, Winsted, Connecticut; M. V. Byers, Osceola, Nebraska; Robert E. Cochrane, 450 Greenbush St., Milwaukee, Wisconsin; J. W. Cook, Duluth, Minnesota; J. H. Crawford, Harvard, Illinois; S. A. Coxe, Brandon, Manitoba; J. M. Creamer, Portland, Oregon; J. W. Dunham, Fargo, North Dakota; Otto Faust, 211 Union St., Poughkeepsie, New York; J. H. Gain, Experiment Station, Lincoln, Nebraska; J. H. Gould, Fairmont, Minnesota; John C. Hargrave, Medicine Hat, N. W. Territory, Canada; E. T. Harrington, 873 Broadway, S. Boston, Mass.; J. W. Haxby, Villisca, Iowa; W. L. Henderson, Carberry, Manitoba; C. J. Hinckley, Odebolt, Iowa; W. C. Holden, Delphos, Ohio; F. A. Ilstrup, Willmar, Minnesota; H. Jensen, Weeping Water, Nebraska; Geo. A. Knapp, Millbrook, Dutchess Co., New York; Morgan B. Lamb, Pullman, Washington; T. Lambrechts, Montevideo, Minn.; G. Lames, Dysart, Iowa; R. Le Pointe, Laseur, Minn.; H. C. Lyon, Hutchinson, Minn.; W. A. McClanahan, Redding, Iowa; D. M. McDonald, Brainerd, Minn.; Geo. McGillivray, Spring Valley, Minn.; J. H. McLeod, Charles City, Iowa; E. Makins, Jr., Abilene, Kansas; Peter Malcolm, New Hampton, Iowa; A. W. Miller, S. Omaha, Nebraska, Box 58; B. O. Minge, 147 Court St., Memphis, Tenn.; E. L. Moore, Brookings, South Dakota; H. F. Palmer, 608 Champlain St., Detroit, Mich.; Joseph W. Parker, San Antonio, Texas; Adolph J. Pistor, Newark, N. J.; C. H.

Playdon, Reading, Mass.; H. A. Pressler, Fairbury, Ill.; Richard Price, St. Paul, Minn.; C. J. Rhodes, Beloit, Wisconsin; F. A. Rich, Burlington, Vt.; J. J. Riordan, Beverly Farms, Mass.; J. G. Rutherford, Ottawa, Ont.; Geo. A. Scott, Independence, Iowa; John A. Scott, Waverly, Minn.; J. N. Sheppard, Langdon, North Dakota; L. U. Shipley, Sheldon, Iowa; S. P. Smith, Cando, North Dakota; U. S. Springer, Grand Rapids, Mich.; Harry F. Steele, Fort Sill, Oklahoma; C. E. Stewart, Chariton, Iowa; W. Swenerton, Carberry, Manitoba; R. H. Treacy, Bismarck, North Dakota; Arthur Trickett, 2417 Grand Ave., Kansas City, Mo.; Harry W. Watson, Haverhill, Mass.; A. L. Wood, Prairie City, Iowa.

Reinstatements: C. A. Clinton, Laurens, Iowa; A. A. Keys, 82 S. 8th St., Minneapolis, Minn.

REPORT OF DR. C. J. MARSHALL,

STATE SECRETARY FOR PENNSYLVANIA.

The veterinary profession of Pennsylvania is made up of about 1700 registered men; nearly 300 of this number are college graduates. About 1000 names on our registration list were placed there improperly, and have ceased to have any identity with our profession. We are fairly well organized, and are working in harmony on all legislative and professional subjects. There is one State organization composed of about 200 working members, which represents all sections of the Commonwealth. There are, also, several energetic local societies. The State Association reached its twenty-first birthday last year. It attained its majority with a rich inheritance of perseverance and integrity from its founders, who are still guarding its interests as only thoughtful and loving parents can do. In the A. V. M. A. we find enrolled twenty-seven members from Pennsylvania. Of the 300 men eligible we hope soon to see a much larger percentage belonging to the National Association.

The Keystone Veterinary Medical Association meets in Philadelphia the first Tuesday evening of each month. At present it is trying to devise a plan for the improvement of the milk-supply to our hospitals and public institutions. A circular letter was sent out last winter to the different stewards or managers, and it was found that very little attention was being paid to the inspection of milk, the system of handling it, or the cleanliness of the herds and dairies supplying it.

The State Board of Veterinary Medical Examiners has been established seven years. In this short time it has demonstrated its usefulness. The records show each year that the young men presenting themselves for the examinations are much more thoroughly prepared for their work, and that better educated and more scholarly young men are entering our profession. This board is trying at present to get an Act passed by the Legislature whereby a re-registration will be made necessary. This appears to be the only plan by which the registration lists can be freed from the names of many persons who have no connection with our profession. This board has secured convictions against three illegal practitioners, and has three more cases in the courts at present. Most of the complaints brought before the board are adjusted peaceably. The Secretary attends personally and promptly to all complaints, and has the faculty of bringing about a settlement usually without legal assistance. His term of office expired last year, and the Governor recognized his usefulness by reappointing him, which action met with the unqualified approval of the entire profession.

The State Live-stock Sanitary Board of Pennsylvania was organized in 1895. Its thorough organization was brought about largely through the efforts of our State Veterinarian, whose tact, scientific skill, and indomitable perseverance have made it the admiration of our profession. We wish that every State in the Union had a similar board equally as well organized and working as harmoniously for the good of our live-stock interests. The little opposition to the board for the first few years has gradually subsided, until at present very little criticism is heard from any source. At present the board is trying to devise plans whereby cattle reacting to the tuberculin test and showing no visible signs of disease can be utilized with less loss to the owner and State than is necessary under the present regulations. It has under observation a good-sized herd of reacting animals, and is studying the sanitary precautions necessary to handle such a herd, and also the best way to dispose of its products.

The laboratory of the State Live-stock Sanitary Board is one of the most complete of its kind. All of the tuberculin, mallein, and most of the vaccines used in the State are manufactured in this laboratory and distributed among our profession free of charge. This alone represents a sum of money which would cost the State quite as much as it does to run the laboratory, yet its principal value is for research and diagnostic purposes. In the lines of research work a method is being tested for immunizing cattle against tuberculosis by a process of vaccination with attenuated cultures. For diagnostic purposes the laboratory has become a necessity. Special shipping boxes are deposited with veterinarians in different sections of the State with directions for packing and shipping specimens. These specimens are examined pathologically and bacteriologically if necessary. In case of infectious diseases the result of the examination is returned promptly to the shipper with instructions and the necessary material for handling the outbreak. In the past year very few cases of glanders have been observed. This disease may be said to be extinct in Pennsylvania, and only occurs here and there as it is brought in from other States. Altogether there are about a dozen cases a year. A few cases of anthrax and some rabies have been reported. The rapid diagnosis of rabies as practised in the laboratory, consisting in an examination of the cervical ganglion, economizes a great deal of valuable time in cases of suspected rabies.

The instructions for obtaining specimens and the directions for handling contagious diseases sent to the veterinarians by the State Board and the Laboratory have been equivalent to a post-graduate course for all who have had to deal with such cases. It has stimulated the desire among our profession to read more and become more familiar with the most modern ideas. Its influence has done much to unify our profession and to make it more highly respected.

There are many factors at work for creating a greater demand for more and better domestic animals. This benefits our profession indirectly. Where valuable animals are kept skilful veterinarians are required. Among these factors the most notable are horse-shows, dog-shows, fat-stock shows, the numerous pet-stock shows, and county fairs. Each in its turn stimulates the desire to breed animals true to some certain type. The demand was never better for a first-class specimen of any class or type. In the last few years many wealthy gentlemen have become interested in show competitions, and fabulous prices are paid for animals that possess qualities suitable to become show animals. There has been a marked increase in the demand for saddle horses. The bicycle has been relegated to oblivion, and horseback riding has become much more popular. Horse-shows have increased the value of all fashionable classes of horses. These shows have been a source of education to those interested in the equine species.

In the matter of meat- and milk-inspection very little has been done in the past year. The Federal meat-inspectors are doing good work in Philadelphia, and we hope that the time is not far distant when we can have some system of meat-inspection for cities of the first and second class especially that will do as thorough work in the inspection of local dressed meat for home consumption as is practised at present by the Federal inspectors.

A very satisfactory system of milk-inspection is carried on in Philadelphia under the direction of the Pediatric Society. This society will recommend milk from any dairy that will conform to its requirements. The society employs a veterinarian, a bacteriologist, and a chemist, to make inspections at certain intervals at the expense of the dairymen. The veterinarian is to be satisfied with the health of the cows, with the cleanliness of the herd, stable assistants, milking utensils, general sanitary conditions, feed, etc., and that the interest and precautions necessary for producing clean milk are exercised faithfully and constantly. The tuberculin test is to be used at the discretion of the veterinarian.

The bacteriologist examines the milk at least once a month. The bacteria must not exceed 10,000 per c.c.

The chemist must be satisfied with the natural constituents of milk, and that no artificial preservatives are added to it.

At present there are five dairies producing milk for the Philadelphia market under these conditions. We hope in time that there will be milk enough produced under these or similar rigid conditions to supply all persons who appreciate the necessity of using clean milk. Milk produced in this manner must of necessity bring a few cents more per quart than milk produced and handled in a careless manner. People recognize different qualities of clothing, meats, vegetables, cigars, liquors, etc.; why should they not also recognize and appreciate the different qualities of milk and be willing to pay for the extra pains necessarily involved for obtaining it clean and wholesome? The beneficial effect of the dairies producing milk under the directions of the Pediatric Society is observed by other dairymen, and a decided improvement is noticed on the farms in close proximity to such dairies. The same interest produced in horses by horse-shows and in dogs by dog-shows can also be produced in dairies by model dairies. It should be our duty to encourage such undertakings in every way possible. It has been said of dairies producing milk under such careful conditions that they are short-lived; that the enthusiasm is soon lost, and that business drifts back into the same old rut. This has not been observed in respect to the work done for the Pediatric Society. Certified milk has been produced and sold in Philadelphia for the past five years, and the demand is gradually increasing.

The Veterinary Department of the University of Pennsylvania is at present located in temporary quarters. The old buildings were razed last year to make room for a medical and veterinary laboratory. The plans for the new building are about completed. The construction is expected to begin soon. It is to be located on one of the principal streets near the University, on a site that will be much more desirable than where it formerly stood. The plans are for one of the most complete and unique buildings of its kind in any English-speaking country.

Three members of our profession have died in the last year. Dr. W. T. Miller, of Apollo, Pa., one of the old members of the A. V. M. A., died June 18, 1902. He was a graduate of the American Veterinary College, class of 1887.

Dr. James Beatty, a native of Pennsylvania, graduated from the Veterinary Department of the University of Pennsylvania in 1897. He was employed three years prior to his death as a Federal meat-inspector, and was located in Philadelphia at the time of his death. His loss is keenly felt by his many friends, who esteemed and respected him for his loyalty, integrity, perseverance, and professional skill.

Dr. Rush Shippen Huidekoper, whose death I also have the sad duty to report, was one of the greatest builders of the veterinary medical profession in America. His death is a national loss, and is most keenly felt in his native State by those who knew him best. The honor of doing his memory justice at this meeting has fallen on one of his most faithful friends and fellow-workers. Suffice it to say that his sentiments are the sentiments of the entire profession.

C. J. MARSHALL.

RESOLUTIONS.

Committee on Standard of Excellence and Soundness.

Resolved, That a committee of three be appointed to formulate a standard of excellence and soundness for horses of various classes, and report at the next annual meeting of this Association.

Tuberculosis.

WHEREAS, In the repression of tuberculosis of cattle it is of the highest importance that the disease shall, so far as possible, be confined to the localities already infested; and

WHEREAS, Every hindrance to the shipment of tubercular cattle into the United States, from one State to another, or from one farm or district to another, helps to confine the disease and to lessen the difficulties attending its final eradication; be it

Resolved, That this Association approves the establishment and maintenance of Federal and State laws and regulations to prevent the transfer of tubercular cattle from place to place, excepting in quarantine.

Clinics.

WHEREAS, For several years it has been the custom to offer clinical demonstrations as a part of the programme of our annual meetings; and

WHEREAS, It has become apparent that these clinics are a source of great interest and profit to a large number of the members; therefore, be it

Resolved, That we favor the continuance and improvement of this feature of our meetings by including other than surgical cases and the exhibition of pathological specimens; and if it be necessary in order to enable the local committees of arrangement to better perfect these clinics and make them more worthy such a scientific body, it would be well for the Association to render additional assistance by appropriating such a sum of money as may be necessary to accomplish the purpose.

Texas Fever.

WHEREAS, The Cotton States Association of Commissioners of Agriculture, at their annual meeting, held in the city of Nashville, Tenn., August 26 to 28, 1902, passed a resolution providing for the appointment of a committee of three veterinarians connected with the Association to investigate the subject of Texas fever among cattle in the area now pronounced permanently infected with the disease, with the object of ascertaining what steps should be taken to render the territory free from infection, and also devise and recommend such measures as will result in the co-operation of the States affected, to the end that Texas fever may be permanently driven out of the infected district; and

WHEREAS, The above-named Association has named as members of such investigating committee three honored members of the American Veterinary Medical Association—Drs. Carey, of Alabama; Butler, of North Carolina, and Dalrymple, of Louisiana—gentlemen whose intimate acquaintance with the subject to be investigated is well known and respected by us; therefore, be it

Resolved, That we hereby congratulate the Cotton States Association of Commissioners of Agriculture upon the wisdom of their action and the country upon the prospects of an intelligent solution of the great problems connected with this disease, which has and is producing such hardship and pecuniary loss to our Southern States.

State Associations.

Resolved, That it is the sense of this Association that it is the duty of State Veterinary Medical Associations to make their conditions for membership conform with those of this Association.

Intelligence and Education.

Resolved, That the Committee on Intelligence and Education be instructed to investigate and report at the next meeting upon the organization and work of all American veterinary schools and State examining boards. Be it further

Resolved, That members of the faculties of the various veterinary schools and the members of the State examining boards shall be communicated with and given an opportunity to submit written or oral statements upon the subjects under investigation.

On the Death of Members.

WHEREAS, It has pleased Almighty God to remove from our midst Dr. Rush Shippen Huidekoper, of Philadelphia, on December 17, 1901, one of our most esteemed and beloved members, one who had given the greater part of his energetic life to the building and uplifting of the veterinary profession on this continent, and the advancement of the best interests of this Association, we feel that through his death the veterinary profession has suffered an irreparable loss and our Association one of its most active members; we not only deplore his death as a member of our Association, but we mourn the loss of a true and tried social friend; therefore, be it

Resolved, That this Association extends to his bereaved family the sincere sympathy of its members in their affliction; and be it further

Resolved, That these resolutions be entered in the records of this Association, and a copy sent to his family.

WHEREAS, It has pleased Almighty God to remove from our midst, during the past year, Dr. Robert J. Saunders, of West Roxbury, Massachusetts, one of the original members of this Association, a man self-sacrificing, conscientious, and studious, enjoying the good-will and respect of all who knew him; therefore, be it

Resolved, That this Association sincerely regrets his loss, and extends to his family its sympathy in their affiiction; and be it further

Resolved, That these resolutions be entered on the records of this Association and a copy be sent to his family.

WHEREAS, It has pleased Almighty God to remove from our midst during the past year Dr. Thomas F. Barron, of Baltimore, Maryland; therefore, be it

Resolved, That this Association regrets his loss and extends to his family its sympathy in their bereavement; and be it further

Resolved, That these resolutions be entered upon the records of this Association and a copy be sent to his family.

WHEREAS, It has pleased the Almighty to remove from our midst Dr. John Faust, a valued member of our Association, whose death occurred in the month of July, 1901; therefore, be it

Resolved, That this Association greatly regrets his loss, and extends to his family its sympathy in their bereavement; and be it further

Resolved, That these resolutions be entered upon the records of this Association and a copy be sent to his family.

TAIT BUTLER, *Chairman*.

TÆNIGEN. There is another vermifuge which is popular with canine practitioners. It is prepared from areca nuts, and is very active in killing and expelling the round worm (Lumbrici) in dogs, and when given in moderation is entirely safe. It seems to narcotise the worm, and requires the use of a brisk cathartic. It is strongly commended by Mr. C. S. Smith, M.R.C.V.S., Barnsley; Mr. H. Hall, M.R.C.V.S., Southampton, and several other canine practitioners. The dose of tænigen is from 15 to 60 minims, according to the size and body-weight of the dog. It is also best given in capsules.—*Ibid.*

PERSONALS.

State Veterinarian Pearson, of Pennsylvania, addressed the dairymen's gathering at Castle Rocks Park, Chester County, in August.

Dr. William Gall, of Matawan, N. J., made a trip to Europe in the latter part of the summer season.

Dr. J. H. Oyler, of Harrisburg, Pa., is the owner of the fast trotting gelding "Blizzard." He was the winner in a $300-purse at Lancaster, in August.

Dr. E. Brainerd, of Memphis, Mo., spent his vacation in Utah and Colorado, in the early days of August.

State Veterinarian Pearson made a flying trip to Quebec, Canada, in August, visiting Montreal, Toronto, Guelph, and many other points.

Dr. Emil Knight, of Rochester, N. Y., spent many of the days of August in Atlantic City, N. J., listening to what the wild waves were saying.

Dr. J. C. McNeil, city veterinarian of Pittsburg, Pa., spent two weeks in Altantic City and at Manhattan Beach in August.

Dr. Olaf Schwartzkoff, of the United States army, recently stationed in the Philippine Islands, has returned to the United States with the Third Cavalry, and will be stationed at Cinnabar, Wyoming, near the Yellowstone Park.

Dr. J. M. Wright, of the firm of Wright and Merillat, of Chicago, hied himself to the woods of Wisconsin for a period of ten days in August.

Dr. A. S. Alexander, of Evanston, Ill., contributed a very interesting article to a recent issue of the *Weekly Live-stock Report*, entitled "Preventing Hog Cholera."

Dr. Nelson P. Hinkley, formerly of Atlanta, Ga., has returned to his old home, Buffalo, N. Y., owing to the impaired health of his wife in the South. He is rapidly regaining his old clientele.

Dr. John R. Mohler, of the Bureau of Animal Industry, made a trip recently through the South Dakota ranches.

Dr. R. F. Forrest, of Uxbridge, Ontario, is a breeder and admirer of the trotter.

Dr. W. Ratcliffe and family, of Waynesburg, Pa., spent some four months this summer travelling through England.

Dr. S. S. Cole, of Vineland, N. J., was the defendant in a peculiar suit for alleged injuries done by a bull-dog. His undershot mouth proved that he could not bite.

Dr. I. Johnson, of Peterborough, Canada, takes delight in handling green trotters and preparing them for the race track.

Dr. Thomas MacColey, veterinarian, of Carnegie, Pa., is running an independent candidacy for the office of burgess of his adopted city. He has framed his own platform, and will appear on a citizens' ticket, ignoring the recognition of both old parties.

Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, will visit England shortly, to inspect the methods of shipment of meats in refrigerator ships.

Dr. S. F. Rose, of Waynesburg, Pa., was killed during the summer by being struck with a bottle.

Dr. D. Eugene Block, Secretary of the Virginia Field and Sporting Club and ex-Veterinary Surgeon of the United States army, is now engaged in the training and sale of saddle horses and those suitable for hunting and jumping purposes.

Drs. R. F. Eagle, D. G. Painter, H. Timmerman, F. W. Hopkins, and U. G. Houck were among the East St. Louisians in attendance at the eleventh annual meeting of the Missouri State Veterinary Association, St. Louis, August 18th and 19th.

Dr. W. A. Boucher, of Salina, Kas., has located at Fullerton, Cal., where he will continue the practice of his profession.

Dr. T. M. Doram, graduate of the McKillip Veterinary College, has located at Danville, Ky.

Veterinary Surgeon Howes, of the English army, is severely criticised because of his close relations with Captain Smith, who is now under arrest for connivance and corruption in the purchase of mules for the South African army while stationed at New Orleans, La.

Dr. Otto G. Noack is Secretary of the Road Drivers' Association, of Reading, Pa. The organization is agitating the question of a speedway for Reading road drivers.

The Chicago Horseshow Association has selected as its veterinarians Dr. H. M. McKillip, chief veterinarian, and as staff veterinarians Dr. Frank Allen, N. E. Nettleton, and Gerald E. Griffin. This makes a strong array of veterinary service.

Dr. Levi Johnson, of Portland, Ore., is attending a post-graduate conrse at the McKillip Veterinary College.

Dr. C. M. Noble, of Houston, Texas, has been appointed food inspector for that city at a salary of $1200 per year.

Dr. W. Harry Lynch, of Manchester, N. H., has become the assistant of Dr. J. H. Ferster, of West Eleventh Street, New York City, N. Y.

Dr. O. A. Stingley, of Kansas City, has been appointed an assistant inspector in the Bureau of Animal Industry, and ordered to Chicago.

NOTES.

South Carolina has recently issued her Veterinary Sanitary Control Regulations in pamphlet form. As these rules and statutory provisions are promulgated through the Clemson Agricultural College, to which is attached the State Experiment Station, and as the State Veterinarian is an officer of the college and Experiment Station, there is an additional interest to their police measures.

Quarter evil: Dr. Marra has treated two cases with tachyol, a new antispetic discovered by Prof. Pasteur and used with success in Milan Veterinary College. Marra made ninety injections in the swellings on two calves, commencing in the periphery and working to the centre, the solution being 1 to 500. Each had a dose of hay tea, with 100 grammes of alcohol. The temperatures in the morning before the first injection were 41.4° C., 41.5° C.; evening, 39.5° C. Next day, 38.4° C. and 38° C. The swelling was stationary for forty-eight hours; then the animals recovered their spirits and began to eat. "In five days," wrote the owner, "they were all right."—*Policlinica.*

The first dog hospital in Moscow has just been founded by an association of women of that place.

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THE NEWER ERA OF VETERINARY MEDICINE.[1]

BY PROF. JAMES LAW, F.R.C.V.S.,
ITHACA, N. Y.

It is not always best to plume ourselves upon our achievements and the exalted position to which we have attained. It is liable to beget personal and professional pride, which is proverbially near to personal disaster. Yet, if we are duly impressed with the fact that we know so little, even to-day, and with the immeasurably vast field that still lies open to us for discovery and advancement, it is not unbecoming, and it may be a wholesome tonic and source of encouragement to take a cursory glance over our field of work, and note some of the changes that have taken place within the memory of living man.

But no one can confine such a glance to one field of achievement alone. The eye is at once caught and held by the wonders of modern progress on every side, which have kept pace with each other on every side of human enterprise.

The wonders of achievement of the past half century in every field of science have immeasurably surpassed those of any antecedent period of the world's history of many times its duration. If an accomplished man of the early part of the nineteenth century could return to mortal life furnished as he was at his exit, he would be made to feel at every step that the world was out of harmony with his habit of thought and experience. The triumphs of steam and electricity in bringing the most distant parts of the world to his door ; the revelations of the telescope and spectroscope in demonstrating the existence and composition of the greater part of the now visible stellar world, and in creating entirely new cosmic doctrines; the regular succession of geologic strata and their relics of living forms furnishing a historic library of the earth's past history and a demonstration of the successive stages of its building. The demonstration of light and heat and electricity as forms of energy which may be made mutually interchangeable, and through which all the energies of the universe appear to be continually maintained; the exhibition of the Röntgen light rays penetrating the most opaque organic matter and showing the existence, position, and form of the inorganic substance imbedded in its deepest recesses; the responsiveness of given chemical compounds to light, through which we obtain the now commonplace but perfect photographic pictures of solid objects; the power of charging given bodies with light or electric energy to be given off by slow degrees for useful ends; the still more wonderful power of certain products—radius polonium—of radiating light indefinitely without the preliminary charging of them from a previously radiant source; the transmission of electric messages, without solid conductor, through the ether for hundreds of miles, to be caught up and turned into words and thought by a receiver rightly attuned to their vibrations; the submarine ship; the dirigible flying machine. These are but a few of the more obvious advances that crowd in upon the average mind that is in no sense specialized in any one of these fields. To the scientist of 1800 these and the thousand other less obtrusive, but not less real, of the nineteenth century triumphs would come with a force that would be perfectly overwhelming.

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[1] President's Address delivered before the New York State Veterinary Medical Society, Brooklyn, N. Y., September 9, 1902.

When we turn to the advances in matters connected with medicine, the wealth of example is to us even more embarrassing. I can note but a very few of the salient points in which the present differs from the past.

When I took to the study of medicine the old days of vivisection had not quite passed; every physician carried and used his lancet, and no veterinarian could get along without his fleam and blood stick. Every active inflammation, if not in its early stages, was held by many to be benefited by the free abstraction of blood. In Southern Europe the practice was even more firmly rooted; under the then prevailing doctrines of Broussais, bleeding was advocated, "coup sur coup," time and again in the same attack, any increase of pulse, breathing, and mouth temperature being a warrant for a new abstraction. Broussais himself is reputed to have bled the babe at the breast and the old man of seventy. A number of years later the celebrated Italian statesman, Cavour, was held to be literally bled to a hopeless and fatal condition. By my time, however, the old and celebrated British physicians had become rather ashamed of their former excesses in this line, and the doctrine was already current that the type of disease had changed from a sthenic to an asthenic one, and that the former free depletions were not only not called for, but were in most cases absolutely injurious.

Why the type should have changed in Great Britain and not in France and Italy was not fully explained. Some of the incorrigibles and disloyal ones had a rankling suspicion that the violence of disease in former years was in no small degree due to the energy of the treatment applied. In any case the bent spring rebounded, and it flew so violently to the other side that the practitioner could hardly be made to confess that he knew of the existence much less the use of the instruments of vivisection.

To-day we are somewhat less prejudiced on either side. We recognize that no agency is more prompt and telling in its action than a diminution in the solids of the blood; for the water is soon supplied anew, and we have secured a transient abatement of suddenly induced plethora, a strong impression on the nervous system, and indirectly on circulation, nutrition, calorification, and the many recondite processes of cell-production, and destruction of metabolism, of hæmolysis, of leucocytosis, of diapedesis, of phagocytosis, and of chemotaxis, positive and negative.

If our theories are more complex, they are to-day based on a wider knowledge, and if we can no longer use the lancet as a panacea for all inflammatory, and many other diseases, we have intelligent views as to the small number of cases in which we can still draw on its use with striking advantage.

In the middle of the last century sedative treatment was the rule; calomel and opium held a high place in the treatment of inflammatory affections, and the reliance upon it was so strong that it was naturally pushed to excess, and cases of mercurial salivation were frequently in evidence. To-day we still esteem calomel as a valuable antiseptic of the alimentary tract, favoring at the same time elimination from the whole chylopoietic system, to say nothing of its influence on metabolism and nutrition; but we are no longer in danger of using it as a routine treatment, or of pushing its use to the extent of producing mercurialism.

A still more potent sedative was found in tartar emetic, which in combination with febrifuge diuretics was used as a routine treatment in febrile and inflammatory cases, for both man and beast. Here, again, we had an agent of great potency, especially in the carnivora and omnivora, which acted not only on the nervous system and indirectly on the skin and mucous membrane, quieting, relaxing, stimulating perspiration, but with an influence on the great liver and digestive functions. No doubt it oftentimes assisted wonderfully in abating the high nervous tension and inviting that resumption of secretions which was attended by a favorable crisis or lysis. But the blind reliance upon it as a routine treatment is gone, and when we now prescribe it it is only to secure some definite result of its physiological action, and that accomplished it is dropped from the prescription.

We might canvass other agents in the same way; but time presses, and I must let these stand as examples of a change at once radical and rational.

One great danger of to-day is that we should overlook the real worth of medicinal agents and methods that were standards of the great men of the past, and in so doing put from us much of the legacy they have left us. In my view of the matter wisdom lies in a certain respect for their methods which had, after all, a substantial basis, so that while entirely loyal to the advances of recent time, we should still stand ready to judicially pass on the medical lore of the past and make a right use of it in those cases in which it can be applied to advantage.

The ordinary diseases of bones in animals were formerly looked upon mainly as the result of mechanical injuries, and ringbones, and splints, and spavins were explained on the grounds of blows, concussions, sprains, and the like. To-day we look deeper, recognizing the bearing of heredity; varying individual and family nutrition; the quality and tone that come from appropriate diet and usage, and the lack of these with unsuitable food and disuse; the influence of the poison that is found in the magnesian limestone, and of the impaired nutrition which comes in constitutional diseases. In short, to us an osteitis or periostitis is not simply a local inflammation to be subdued, but also, in many cases, a constitutional infirmity which must be corrected if we would make a permanent cure.

But in the whole field of medicine no advance has been so fundamental and fruitful as the introduction of microbian pathology. As a link with the past you have before you one who sat under the instruction of a man who even denied the existence of infection in epizootic diseases. William Dick, the founder of the Edinburgh Veterinary College, was in some respects a great man, according to his light. But in some lines his light was but gross darkness. Following Sydenham, he attributed all epizootic diseases to general causes—thermic, atmospheric, electrical, telluric—which assailed all animals alike, and to which those only succumbed which were at the time attuned to the morbid influence. For him rabies was the mere result of a general influence, and in his lectures he related how a rabid dog had licked a sore on his hand without producing the slightest evil result. For him lung plague was the result of inclement weather, exposure, poorly ventilated buildings, and the like, while rinderpest took its start from impaction of the third stomach, as a consequence of feeding on dry, fibrous, weathered and innutritious food. Dick stood long and loyally by his colors, logically applying his doctrines to all epizootic diseases ; he bore up bravely through the invasion of aphthous fever and lung plague, and it was only when the deadly rinderpest swept over the island that the old man, full of years and honors, had the chagrin to see his whole doctrine fall to pieces under the dread logic of facts.

The doctrine in question found in Dick at that time its most faithful exponent under all circumstances and as applied to all epizootics, but others clung tenaciously to general causes in the case of a number of communicable affections. Henri Bouley, of Alfort, a grand man, physically and mentally, a man who never touched a subject but to render it attractive, may be adduced as a striking example. Glanders was at that time recognized in England as contagious in all its forms and stages, even the indomitable Dick excluding it from his list of epizootic diseases due to general conditions. But in France contagion was accorded to acute glanders only, the chronic cases being held to be entirely free from infectious qualities. On both sides of the Channel the disease was attributed to general mismanagement and poor hygiene, as was tuberculosis at the same date. I have heard the silver-tongued Bouley discourse learnedly and to himself conclusively on the development of glanders from the impurities of stable air, insufficient or injurious food, cold and damp, and, above all, from overwork, the creatin, creatinin, and other morbid products retained in excess within the system, laying the foundation of the deadly morbid processes. The results of the two doctrines were not a little remarkable.

In Great Britain it was rather rare to see a glandered horse, while in the veterinary school at Alfort they were daily on exhibition. In the English army glanders was virtually unknown, and the occurrence of a single case was held to reflect seriously on the regimental veterinarian, while in the French army 9 per cent. per annum became victims of this disease.

But even when contagion was recognized the mystery continued as to the actual agent by which the transmission took place. This ignorance was cloaked under such vague and speculative terms as "miasen," "humor," "virus," and, later, "morbid functions in cells," and pathogenic "bioplasen."

It was only when Pasteur in his researches on alcoholic fermentations demonstrated the facts that such fermentations, and even putrefactions, were the direct consequence of the multiplication in the liquids of particular living organisms or ferments, that the foundation had been laid for a true doctrine of contagion.

Lister, at that time assistant surgeon to the Edinburgh Surgical Hospital (and whose lectures I then availed myself of), conceived the idea that the fermentation and putrefaction changes in wounds, and notably the terrible hospital gangrene, must be due to similar ferments, and, therefore, preventable. He pursued his research for seven years, and in 1877 was enabled to report the demonstration of the truth of his convictions. It was years, however, before it made headway in other lands, Guerin, for example, taking the lead in Paris in 1871; but very soon the scourge of the hospital came to be held as a thing of the past, and patients went to the operating-table with a hopefulness and confidence that had never before been known.

Prior to Lister's researches compound fractures and gunshot wounds were most dangerous contingencies, and most operations involving the opening of the abdomen, the cranium, or the chest were considered very redoubtable; whereas to-day they are undertaken light-heartedly and in a most hopeful spirit. And yet long before Lister's day the castration of females had been generally practised in different countries, often by others than veterinarians (by gelders and shepherds), with almost invariable success, and the trephining of the cranium for cœnurus was a common and often a successful practice with veterinarians. The danger lay more in the concentration of the infection in great hospitals than in the dangerous nature of the lesion by itself. The virtual disappearance of hospital gangrene and other wound infections from city hospitals is one of the most splendid monuments that could be raised to the memory of a man. No matter if we have largely discarded Lister's antiseptic surgery, substituting wherever possible aseptic treatment, the same principle underlies both, and it is to Lister that we must attribute the planting of the germ that has borne such a splendid fruition.

As Lister first applied the great discovery of Pasteur to surgery, so Davaine may be said to have done for medicine, and it is an important fact that it was in the line of medicine of animals. Pollender in 1849 had found multitudes of very fine rods in the blood of anthrax-stricken cattle. Davaine confirmed this a year later, and Brauel seven years later still. But it was only in 1863, and as a result of the Pasteur discovery, that it suddenly occurred to Davaine that this was the true cause of the disease. But anthrax was still a very indefinite quantity. By a reference to the literature of the time it will be seen that it included black quarter, malignant œdema, hog cholera, swine plague, swine erysipelas, the various hemorrhagic septicæmias, and even Texas fever. It was only slowly and by patient work in the field and laboratory that these various independent affections were differentiated and each assigned its place according to its true microbian cause and pathology. The final demonstration has come in every case through the discovery of the microbe, and gradually veterinary pathology has been enriched by the addition of a long list of animal diseases, all having much in common and all due to different microbian causes. The laboratory study of these affections has not only given us the demonstrations of this large class of maladies, but it has contributed largely to the identifying of many deadly forms of poisoning by toxins, ptomaïnes, and enzymes, and again by mineral agents like powdered soaps added to swill, and which have often proved as deadly to the herds poisoned in this way as the most destructive forms of hemorrhagic septicæmias or genuine swine fevers. The localization of such outbreaks, their confinement strictly to certain filthy enclosures, to herds fed in a particular way, and the absence of the specific germ of the disease which is suspected to exist, will usually furnish the crucial test, and differentiate for scientific and for practical sanitary purposes, affections which, in time past, would have been classed together as one common malady. So far as these maladies are concerned, we can to-day place veterinary sanitary science on a sound basis, always provided that its administrators are selected for their knowledge of modern animal pathology and are not mere office-holders appointed in recognition of personal claims of other kinds. Closely connected with these affections are rinderpest, sheep-pox, and lung plague, which, since the extinction of the latter in this republic, we have come to think of as plagues of the old world which can never more directly interest the favored stock-owners of America. But our acquisition of the Philippines has brought us into direct contact with Asia, the ancestral home of animal plagues, and the war in those islands has apparently been the immediate cause of the wide and deadly extension of the plague of the steppes into the herds of the Filipinos. Fortunately for our home herds, our vigilant Bureau of Animal Industry was quick to see and meet the danger in securing an order of exclusion of all cattle and pigs coming from the Philippines, from the United States, and any of its dependencies.

But as veterinarians of the imperial country we can no longer afford to ignore the rinderpest of the old world. It is now domiciled on land which in the progress of events has come to be a part of our nation, and we are called upon in right and justice to assist the islanders in ridding themselves of a scourge of which our interference was, in a large measure, the occasion. Manila must look to America for the means of extinction of this plague which now threatens the ruin of her cattle industry, and the American veterinarian must stand ready to take up the work intelligently and to carry it through to a successful issue. No cattle plague is more redoubtable and deadly, and yet for those who may be charged with its extinction the prospect is much more hopeful than when we are dealing with a pestilence which is slower in its progress, more liable to prove occult in its course, and in dealing with which every step is liable to be clogged and even blocked by a badly informed and often prejudiced legislative body. In a dependency like the Philippines, under an intelligent centralized authority, there is a better prospect of the adoption of effective measures of extinction and of carrying these through without varying or hesitation to a splendid success. If this can be accomplished, and if the object lesson can be taken in the right spirit by the United States, encouraging them to grapple effectively with their own indigenous plagues, the blood and treasure expended on those distant islands may be repaid many times over in the future prosperity of our animal industry.

(To be continued.)

State Veterinarian Pearson, of Pennsylvania, after visiting parts of Iowa and Wisconsin, returned to his post about the middle of September.

RESULTS OF STRICT SANITARY REGULATIONS IN ARIZONA.[1]

By J. C. Norton, V.S.,
TERRITORIAL VETERINARIAN, PHŒNIX, ARIZONA.

When first asked to write a paper on this subject to be read before this Association of veterinarians, who are more largely interested in the practice of veterinary medicine than in sanitary work, I thought it could only be considered that it was another Westerner trying to praise not only the Territory in which he lives, but even the work that he was largely responsible for in that Territory, for it happens that I have been closely connected with the sanitary work of Arizona during the past nine years.

However, as all of us learn and are encouraged largely from the experiences of others, it may be that some of you may receive a little benefit in the next few minutes from the experiences of a Western Territory. As we are located in the extreme Southwest, "Woolly West" you Easterners call it, it will not be expected that I will give anything new, and, in fact, the topic does not indicate that I will give anything other than results.

Owing to the cautious action of the members of the United States Congress, due mainly, I think, to their lack of knowledge of exact conditions existing, Arizona is one of three Territories still to be admitted to the Union. Even though Arizona is a Territory her people have been awake to their best interests, and some fifteen years ago passed live-stock sanitary laws, which have been improved from time to time, until now the regulations governing the suppression of contagious diseases in the Territory and the admission of live-stock into her limits are as strict as those of any State or Territory in the Union.

Arizona's present sanitary laws require the Governor of the Territory to appoint a Sanitary Board composed of three stockmen, who receive per diem and mileage when on duty, a secretary for said Board, who receives a salary, and a Territorial Veterinarian, who must be a graduate of a recognized veterinary college, who also receives a salary and mileage. These officers are given power to make and enforce any regulations they deem necessary for the prevention, control, and suppression of contagious diseases among the live-stock of the Territory. No certain amount is appropriated for their work, but their accounts are paid from the general fund of the Territory.

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[1] Read before the American Veterinary Medical Association, Minneapolis, Minn., September, 1902.

Though Arizona is a mountainous country and has extensive mining interests, yet hundreds of thousands of well-bred cattle, sheep, and horses are shipped annually from her ranges. Many of the irrigated valleys are largely devoted to the breeding of thoroughbred horses, improved breeds of cattle and swine, and the fattening of range-bred cattle for Eastern markets.

Arizona touches old Mexico along its entire southern line, California along most of its western boundary, and adjoins New Mexico on the east. The Territory is quite mountainous, yet a large part of the southern portion is of low altitude and has a semi-tropical climate. With the United States quarantine line separating Arizona from old Mexico—a country with few or no sanitary laws—on the south, and from quarantined Southern California on the west, it can easily be seen that strict sanitary regulations only have kept the Territory above the Federal quarantine line.

When rigid sanitary work was commenced in Arizona, some ten years ago, there was a small amount of Southern cattle fever infection in one of the irrigated valleys that had been introduced by shipments of breeding stock before United States quarantine regulations were as strict as now; glanders was quite prevalent among horses in certain valleys, and scabies was quite generally distributed among her thousands of sheep as it was at that time in other range countries. Thus it will be seen that even in this new country contagious diseases gained a foothold early in its existence.

A rigid quarantine was placed on the districts where glanders was found, and by careful examinations, aided by the reliable mallein test, in a single year forty-nine glandered horses were found and destroyed. The stockmen of the communities gave every assistance, and the work was done so systematically that not a single case has since been detected in these districts. There have been but three mild outbreaks of glanders in the Territory since 1894, and in these cases the infection was traced directly to the horses that had been driven overland into the Territory. If our range horses had become infected with glanders, it would have been extremely difficult to stamp out the disease, not only because range horses are hard to control, but for the additional reason that in a mild climate the disease usually assumes a chronic form and is often hard to detect until an animal has possibly infected several others.

The tick (Boophilus annulatus) has reached such a high state of development—*i. e.*, in the opinion of Government and State sanitary officials—that the presence of a few will prevent large numbers of the bovine species from enjoying the green pastures and well-filled corn-cribs of the Northern States. I am not opposing the position the fever tick has been given, for its bad qualities have been proven and it is rightly placed, and for a Southern State to be free of ticks is certainly gratifying.

The Southern fever infection was found in only one irrigated valley, where the lands were under fence. There was but a small amount of infection, and yet it could only be eradicated through sanitary regulations, as climatic conditions favored its continuance. In this particular valley the extreme dry heat of summer was more detrimental to the propagation of the tick than the mild winters. Experiments proved that irrigation was not as detrimental to the propagation of the tick as would be supposed. The tick infection on these fields was eradicated by moving all cattle and horses from the same and holding the lands in strict quarantine until all infection was destroyed, which required from ten months to two years' time, according to local conditions.

Comparatively little systematic attention was given toward freeing the Territory from the pest of sheep husbandry—the scab mite—until within the last few years, when the Department of Agriculture has required that all sheep offered for interstate shipment should pass rigid inspection. Though progressive sheepmen have done effective work, this forced upon all breeders of the Territory the importance of sanitary work, and they were more willing to listen to the argument that scabies was due not to filth and poor feed, but to an animal parasite. During the last two years the amount of scabies infection has been reduced to a minimum, but under the methods by which sheep must be handled in range countries—that is, driven from place to place on account of feed and water—it is not possible to make as complete a success of the work in a given amount of time as where stock are confined in one locality.

I am glad to report that we have not had to contend with hog cholera except to prevent its introduction, as many sanitary officials have in the Middle and Eastern States, but the swine-breeders' interests suffered largely from two bad outbreaks of swine plague. Swine are raised principally on alfalfa grass in the warmer climates at comparatively little expense, and are, as a rule, free from disease. Because of these conditions breeders are not usually prepared for the small amount of stormy weather which we have each winter. Swine plague usually appears among pigs and young hogs that have been exposed in stormy weather without proper shelter and feed. Unless checked at once the disease will generally gain in virulence and spread until it destroys swine of all ages. Without assistance usually less than 10 per cent. of a herd will survive the disease and become immune. Usually the disease is stamped out by destroying all diseased animals, burning the carcasses of same, and removing healthy stock to non-infected fields and giving good food and shelter.

I think, isolated as Arizona is, we are in position to have positive proof that the theory advanced years ago by the Bureau of Animal Industry is entirely correct, that there are two distinct contagious diseases among hogs—the one, hog cholera, affecting principally the intestines, and the other, which is termed swine plague, affecting primarily the lungs. I have held hundreds of post-mortem examinations on diseased hogs in the Territory, and have failed to find a single instance where there was any indication of the ulcers on the intestines and other lesions most prominent in hog cholera, yet in all the lungs were more or less affected. Though many lines of treatment have been used by swine-breeders, especially of the Salt River Valley, yet they have proven of little value to the pigs that were affected, but tonic treatment has been of some assistance in warding off the disease when given to healthy hogs. The Government prescription has been used with best results. The sanitary precautions were of the greatest benefit, and where swine-breeders could be persuaded, when the disease first appeared in their herds, to destroy and burn the carcass of every pig that was affected and remove all that were in apparently perfect health to new fields, and those that were not in the best of condition to other new fields, giving them some extra care, the disease could usually be stamped out at once with a loss often of less than 5 per cent.

Though buzzards are protected by law in many States because of their scavenger qualities, yet they caused serious trouble in Arizona where swine plague was prevalent by carrying bits of infection from the carcasses in infected fields to healthy herds. This could only be avoided by strict police regulations requiring every stockman to promptly and thoroughly burn the carcasses of all animals dead or killed on his ranch.

Though the above history shows that strict sanitary work has been of assistance to the stock interests of Arizona, it is no more than has been done in many another State; but the part of the sanitary work in Arizona that I think has been by far the most beneficial is the protective regulations or those guarding against the admission of infected animals from other States or countries. Arizona's sanitary conditions are as favorable to the health of domestic animals as people, for which it is noted, but we are not inviting the introduction of infected animals with a view to their recovery, though we secure breeding and dairy stock from all parts of the Union.

Strict rules have been enforced during the past eight years requiring that live-stock of all classes, shipped or driven into or through the Territory, must receive the written permission of the Territorial Veterinarian before entering the Territory. These rules and regulations require all railroad and express companies before shipping any live-stock into the Territory to report the shipment to the Territorial Veterinarian, stating the point of origin and destination of same, and whether or not accompanied by a certificate of health, and if so by whom signed. Very few shipments are allowed to enter the Territory except those accompanied by satisfactory certificates of health, which are usually given by Government, State, or County veterinarians at point of origin, or that pass the inspection of the Territorial Veterinarian. Arizona not only has climatic conditions favorable to the propagating of many infectious diseases—anthrax, black-leg, Southern fever, etc.—when one introduced, but is particularly liable to receive infection because a large portion of her dairy and breeding stock is shipped from Southern States. Besides hundreds of shipments of cattle pass through the Territory by rail, unloading en route, some originating below the quarantine line in Texas and California destined for points below the quarantine line, and many others originating north of the quarantine line pass through portions of the infected districts of other States before reaching Arizona, making it very important for her interests as well as the stock in transit that all these shipments be unloaded in proper corrals and handled with care.

As proof of the value and necessity for the careful enforcement of strict regulations governing the admission of live-stock into Arizona, I will state briefly conditions of three shipments of infected cattle that were shipped into the Territory during the past eight years. Only these three times during these years has infection been introduced into the Territory by live-stock that entered by rail.

In one of these cases (1894) the shipment was accompanied by a certificate of health, which was either given by an incompetent veterinarian or without due investigation, for fully 60 per cent. of the shipment, which was dairy stock, proved to be tuberculous. Fortunately the cattle were examined within two weeks after arrival and placed in quarantine until all infected animals were destroyed. Certainly no veterinarian should give a certificate of health without positive personal proof that animals in question are healthy.

During the same year a shipment of Southern cattle was brought into the Territory by rail without being reported to the proper authorities. The stock happened to be placed in an inclosed field with susceptible cattle, which in due time contracted the fever. The owner of the fields reported this fact to the Territorial Veterinarian, claiming that the cattle were dying from the effects of bad water. The cattle and fields were placed in quarantine until all infection was eradicated, which would have been practically impossible if the cattle had been placed on the open range.

The third instance occured in 1897, when a train-load of infected Southern cattle was shipped to a town just inside the eastern border of Arizona during the open season (December 31), the railroad officials claiming that the Federal government allowed Southern cattle shipped during that period without restrictions. The cattle were placed in quarantine in the railroad corrals as soon as unloaded, with orders that they should not be removed until free from infection. Though there was snow on the ground when the cattle were unloaded and stockmen of the community objected to having them held in quarantine, it proved to have been a wise precaution, for they were not entirely free from fever ticks until after the seventy-ninth day. At this time the weather conditions were favorable to the propagation of the tick, and the stockmen of that locality paid the owner liberally to ship the cattle out again rather than to have them placed on their range even free from ticks.

This remarkably slow development of the tick was largely due to the cattle being in poor condition and receiving very little care while in quarantine. They had not become reinfected, for the corrals were thoroughly disinfected every fifteen days during the time the cattle were in quarantine. Incidentally I will state that Arizona's rules have forbidden the admission of tick-infested cattle during all seasons for the past seven years, and Southern cattle entering during the open season must pass inspection and be held in quarantine in fenced fields at destination for at least twenty days and then pass a second inspection. This quarantine rule insures our ranges against fever infection from other States.

The regulations governing the admission of live-stock into Arizona are enforced without detaining shipments and at no expense to the shipper when proper certificates are presented. Our regulations are clear, and as they are published by all railroads west of the Mississippi River, few shipments are now offered that are not accompanied by proper health certificates.

Because of range conditions in Arizona the stock laws require that all cattle, horses, sheep, and swine shipped out of the Territory or slaughtered within the Territory be inspected for marks and brands by an inspector appointed by the Sanitary Board, and the shipper must show proof of ownership. This gives an additional opportunity to trace up any infection existing and to guard against infected stock being shipped out of the Territory. The Territorial Veterinarian and Sanitary Board of Arizona are responsible for the movements of all cattle into and out of the Territory, and under the above-described methods they can be thoroughly familiar with the history of the stock in any community, and, therefore, are in better condition to locate infection.

According to Arizona laws all live-stock sanitary regulations are enforced by the Territorial Veterinarian, under the direction of the Live-stock Sanitary Board, and all infection, whether detected by veterinarians or laymen, must be reported to those officers. I have observed that in some States conflicting city, county, and State regulations have prevented the best results. I am pleased to state that the few veterinarians in Arizona have given their assistance to sanitary work.

As a result of the efforts of the sanitary authorities of Arizona, I can state that no cases of anthrax or tuberculosis have been found in the Territory during the past two years, but two glandered horses have been destroyed and none are in quarantine, and the valleys that for years had some fever infection are now freed and no swine or sheep are in quarantine at the present time. I do not wish anyone to suppose that I am claiming that similar rules would be necessary or practical in other States, but have simply given methods used and results obtained in Arizona.

Drs. W. C. Fair, of Cleveland, Ohio, and W. Horace Hoskins, of Philadelphia, Pa., were both seen in the Buffalo Horse Markets in September.

RETAINED AFTER-BIRTH IN COWS.[1]

By W. L. Williams, V.S.,
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We cannot absolutely define in point of time what constitutes retention of the secundines, since what we may deem delayed expulsion in one case may readily be regarded as perfectly normal in another, although the duration of time elapsing between parturition and expulsion of fœtal membranes be the same in each.

A heifer usually expels the fœtal envelopes more tardily than the adult cow, and the expulsion of membranes is usually more prompt where the fœtus has been carried to full term than in case of premature birth or abortion.

Retention is, therefore, a relative term, and signifies a delay in the expulsion of the fœtal membranes of such a duration or character as to constitute a menace to the health of the patient. This period is usually reached in from twenty-four to forty-eight hours after calving, but danger may occur earlier and is not infrequently delayed later.

The symptoms of retention are usually too evident to be mistaken, consisting of the protrusion of portions of the secundines from the vulva, with a variable discharge, and symptoms of local and constitutional disturbances of great diversity according to conditions.

In some cases there is complete retention, no parts being visible, when the disease may be expressed by vulvovaginal discharge; or this may fail, and especially where only a small portion of the membranes remain there may be present only symptoms of septicæmia, and our attention is called to the uterus chiefly through the history of recent parturition without other evidence of disease, and suspicion is set at rest by manual exploration of the genital passages.

In rare cases we meet with eversion of the uterus or vagina and with tetanus as complications.

The causes of retention of the fœtal membranes will not be fully known until the method of detachment and expulsion is understood. We do not know why birth takes place at a certain time, nor why it should be almost immediately followed or accompanied or even preceded by expulsion of the fœtal membranes. Writers on veterinary obstetrics generally recognize two chief classes of causes for retention—inflammatory adhesion of the fœtal to the maternal placenta, and tardy involution of the uterus.

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[1] Read before the Twelfth Annual Meeting of the New York State Veterinary Society, Brooklyn, September 9 and 10, 1902.

The first is largely theoretical and not well verified by clinical evidence. The possibility of such a state may well be admitted, but we find no convincing clinical record to such effect. The condition probably occurs but rarely; the cases so termed being, in our judgment, generally errors in diagnosis. The real condition is a placentitis, causing tumefaction of the maternal placenta, resulting in incarceration of the tufts of the fœtal placentæ, rendering them undetachable.

Tardy involution of the uterus, if not the prevailing cause, is certainly almost a constant condition. But we need not accept the presence of this state as the cause of retention. If we place a pack of gauze in the uterus and retain it there, the organ relaxes, becomes flaccid, paretic, and it would seem that the presence of the after-birth might also exert a retarding influence on involution. In some cases we note further that clinically the involution may be fairly prompt, but a few maternal cotyledons, being inflamed, incarcerate and firmly retain some of the fœtal placenta.

Neither is complete uterine involution essential to expulsion of the secundines, for we not rarely see in delayed labor the fœtal membranes detached in part or wholly, and very rarely even expelled prior to the expulsion of the fœtus. It would consequently appear that tardy involution may be rather coincidental or a parallel condition to rather than a fundamental cause of retained fœtal envelopes, and that the real cause may be best sought in a general interruption of uterine functions, which includes involution as one of its most prominent activities.

We might compare these complex uterine functions to those taking place in the alimentary tract during the process of digestion, where muscular contraction of the walls of the digestive tube is constant, but in itself is totally inadequate to digest aliment, certain glandular and other activities being essential parts of the function.

The thought that uterine contraction suffices to detach the fœtal membranes might be accepted in some animals, but with the cow we have no knowledge of any muscular elements in the maternal cotyledons beyond those of the bloodvessels, and it is difficult to understand how the contraction of the uterine walls can affect the attachments existing between the maternal cotyledon and the fœtal placenta. At times, moreover, the contraction of the uterine walls constitutes the chief cause of the retention.

We feel warranted in concluding from the foregoing observations that uterine involution plays only a subsidiary part in the expulsion of the fœtal membranes.

The causes of tardy or incomplete involution along with general derangement of the uterine functions may be very numerous, among the most prominent of which are debility of the patient, exhausting labor, premature labor or abortion, placentitis, metritis, wounds of the uterus, overstretching of uterine walls by hydrops amnii, etc., parturient paresis.

The treatment of retained membranes should be based upon a rational understanding of the causes at work in each given case. For example, in parturient paresis it will usually suffice to pay general attention to the paresis, and, upon its yielding, the placenta will ordinarily be expelled.

When due to debility of the animal, tonics and stimulants are indicated; while in case of wound, metritis, placentitis, etc., where infection plays the chief rôle, effective means of disinfection are called for, and in fact we might say that the ultimate object of all plans of treatment of retained fœtal membranes is to bring about disinfection of the uterus and vagina.

Before these can be undertaken rationally, careful manual exploration of the uterine cavity is essential. Most writers and practitioners have greatly overdrawn the repulsiveness and dangers of such examination. Properly conducted, it is not very disagreeable nor highly dangerous. Before inserting the hand into the uterus with its putrid contents, the organ should be thoroughly flushed out with five-tenths gallon or more of a tepid disinfecting solution of say 1 per cent. of lysol. The operator's hands and arms should be thoroughly disinfected with a carefully selected preparation. Wounds or abrasions on the hands or arms are always dangerous, and are, perhaps, best guarded by cauterizing the parts and then saturating the cautery scab with a reliable disinfectant.

Most infections probably occur through the hair follicles and sweat glands, and ordinary disinfectants do not penetrate these. We have been led to conclude by our observations that operators who sweat freely most readily become infected. Two plans for avoiding infection through the hair follicles and sweat glands suggest themselves.

Astringent antiseptics like permanganate of potash or nitric acid may tend to constringe or occlude the glandular openings in the skin, or disinfectants having the power of penetrating through sebum, etc., into the cutaneous glands and being deposited therein in a solid state like an alcoholic solution of corrosive sublimate, the tincture of iodine, etc.

Examination may reveal a variety of conditions, which we may consider in three chief groups:

1. The after-birth may be wholly detached and merely retained by contraction of the cervix or other mechanical impediment, or may be partly or wholly attached in such a manner as to allow of its ready detachment, the fœtal tufts separating easily from the maternal cotyledons, none of the fœtal papillæ remaining behind in the cotyledon when mechanical separation is properly attempted. The only handling required is the careful manual detachment of the fœtal from the maternal cotyledons, the withdrawal of the secundines from the uterus, and thorough flushing of the uterine cavity with a mild disinfectant solution.

2. The membranes may be firmly attached to the maternal cotyledons, and any attempt at separation will result in wounding the maternal cotyledons, with attendant hemorrhages and great increase of danger of infection; or the tufts or papillæ of the fœtal cotyledons break off and remain in the maternal placenta, the latter closing over them, rendering their presence a greater menace in this condition than if the entire membranes had been left undisturbed. In the absence of fever or marked irritation it is bad surgery to attempt manual removal. It is advisable in such cases to stimulate the uterine functions and delay putrefaction of the membranes.

A great number of drugs have been recommended to be given in such cases. Ergot has been lauded by some; probably more practitioners have favored the use of stimulants and carminatives, such as various vinous distilled and malt liquors with ginger, fenugreek, anise, fennel, etc. The value of general stimulants and carminatives in favoring expulsion is doubted by few, but the reliance to be placed in these is not equally regarded by various practitioners. Some rely on these almost wholly in nearly all cases. Injections of cold water are favored by some as stimulating uterine contraction. Injections of warm antiseptic solutions in large quantities have proven highly valuable in our hands. They arrest putrefaction of the membranes when used freely twice a day, and hasten the detachment by stimulating normal uterine functions. Internal medication as suggested above may well be combined with this method. Finally, when detachable treat as under No. 1.

3. Placentitis may occur within a few hours after parturition; the cotyledons are tumefied, much enlarged, firm, and the tufts of the fœtal membranes are incarcerated in the maternal cotyledons and held as if in a vise. These incarcerated fœtal papillæ are putrefying, causing septicæmia and high fever. Such conditions brook no delay and call for the most effective disinfection possible. Tearing away the fœtal from the maternal cotyledons only adds to the danger, already great; the injection into the uterus of large volumes of disinfectants can exert but feeble influence on the disease processes going on deep within the enlarged cotyledons. As a rule, the cotyledons in these cases can be detached without maternal hemorrhage, and if so they should all be carefully pinched or twisted off and the uterus flushed out with disinfectants. Fleming mentions this process as having been done by empirics. It is equally proper and salutary when done by the educated veterinarian. It corresponds in its effects to the curetting of the placenta of women. We must look upon the maternal cotyledon in this case as a vast diseased surface, in contact everywhere with the necrotic, putrefying papillæ of the fœtal placenta. If we remove the maternal cotyledon at its neck, we leave a wound area probably less than $\frac{1}{1000}$ of the area of contact between the maternal and fœtal cotyledons, and in a tissue in a state of health more capable of resisting infection. If we delay action and the animal survive, these cotyledons become necrotic, drop off, and are eventually expelled. We have observed the temperature drop 3 or 4 degrees in a few hours after removal of the cotyledons and antiseptic flushing of the uterus. The operation is advised in proper cases only. We have observed fatal hemorrhages where such an operation was attempted by a charlatan almost immediately after calving where no action was really indicated.

To recapitulate, we meet with three chief conditions calling for as many distinct plans of handling:

1. Cases where the after-birth is readily or completely detachable, in which it should be removed manually and the uterus flushed out with antiseptics.

2. Cases where the after-birth is not detachable without violence, in which cases alcoholics, carminatives, and stimulants, internally, with repeated uterine injections of warm antiseptic solutions are indicated.

3. Placentitis, in which removal of the cotyledons is to be recommended.

In all cases of prolonged manipulation, frequent injections of large volumes of antiseptics are of the highest importance, modifying greatly the repulsiveness of the operation and reducing to the lowest degree the danger of infection both to operator and patient, facilitating the operation by washing away the débris and by stimulating uterine contractions, which serve to bring the farther parts of the uterus more readily within the operator's reach.

In addition a large volume of antiseptic solution should be kept at hand, and the operator should thoroughly wash his hands and arms in this at intervals of a few minutes.

When the work is done any fetor remaining on the operator's hands and arms can be removed by bathing in a hot solution of permanganate of potash and the stain therefrom removed by washing in a strong solution of oxalic acid.

It is needless to say that the clothing to be worn during the operation should be of a character readily sterilized by boiling, and the less worn the better as far as compatible with temperature and environment.

TEXAS FEVER AND ITS RELATION TO THE LIVE-STOCK INTERESTS OF TENNESSEE.[1]

By W. C. Rayen, D.V.S.,
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In a discussion of the subject of Texas fever and its relation to the live-stock interests of Tennessee I shall not attempt to refer to the scientific features of the disease, for every veterinarian is now fully informed in regard to the progress that has been made up to the present time. I shall, however, confine my efforts to a discussion of the conditions that have prevailed in Tennessee for a number of years and the methods that have been pursued up to this time by the State authorities in the management of communicable diseases among domestic animals, and Texas fever in particular, with the hope that I may be able to secure from this intelligent convention of veterinarians some ideas and suggestions that will eventually contribute toward a more rational and practical application of the information we now possess in regard to this disease. The position occupied by Tennessee in relation to Texas fever is somewhat different from that of many other Southern States, from the fact that the State is exposed to and adjoins a much larger portion of the permanently infected area, and that only a certain area in the State is more or less infected. A quarantine line described and supposed to be maintained by the State divides what is known as the infected area from the counties that are said to be free from infection. This quarantine line commences at the northwest corner of Shelby County on the Mississippi River, and extends east in a zigzag manner throughout the State from west to east to the northeast corner of Polk County, and in its course affects thirty counties in the southern and central portions of the State.

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[1] Read before the Thirty-ninth Annual Meeting of the American Veterinary Medical Association, held in Minneapolis, Minn., September 2, 3, 4, and 5, 1902.

The topographical conditions of Tennessee are, perhaps, as varied as can be found in any other given area east of the Mississippi River. Commencing at the North Carolina line at an elevation of some five thousand feet above the level of the sea, there is a gradual fall from east to west in a distance of about five hundred miles to the Mississippi River, where the elevation is only two hundred feet.

In any section where such radical changes in elevation take place there must necessarily be a vast diversity in the fertility and adaptability of the soil for agricultural purposes. Such are certainly the conditions found in Tennessee. Large areas of land, both mountain and otherwise, are, owing to the quality and condition of the soil, but sparsely settled, without any enclosures to speak of, and utilized practically for pasturage purposes alone. These vast areas in Tennessee are in most instances covered with what is known in the South as sorry or stunted timber, and during the spring, summer, and fall with nutritious grasses of various varieties that afford abundant pasturage for cattle and sheep, and they are principally devoted to that purpose. In Tennessee these lands are called flat woods or barrens in the lower sections, while on the mountains in the eastern portion of the State they are known as "the range."

It is this open land throughout the State that is more or less infested with Boophilus bovis, and from this fact is considered permanently infected with Texas fever. As these lands approach sections where the country is more thickly populated, the lands enclosed by fences, the ticks disappear and the country seems to be as free from their presence as similar territory in the North. Many of the counties in what is known as the infected area are composed of large numbers of enclosed farms that in some instances cover a very large portion of the county, that are entirely free from infection, and cattle raised on such farms are always susceptible to Texas fever.

In a State so abundantly supplied with lands that can only be utilized at the present time for pasturage purposes it can be readily seen that the subject of Texas fever among cattle is of paramount importance to the agricultural population, and is a problem that requires intelligent and earnest attention if the conditions that prevail are to be removed. While the efforts that have been made by the Federal authorities have been of great benefit to the States north of the quarantine line, and to the cattle industry of the entire country, they have, in a State located on the border as Tennessee is, made the profitable breeding and raising of high-class beef-producing cattle almost an impossibility in many sections of the State. I am informed that one county that is composed of a very large area of range land in the mountain regions, which now sends to the market an average of about twelve hundred cattle annually, could in a short time, if there were no restrictions placed on the traffic, easily produce five thousand marketable cattle each year; and many other counties in what is known as the permanently infected area of the State are in a similar condition. In a State where the natural conditions are so favorable for the economical production of live-stock; where the fertile lands at the foot of the mountains and the valleys that follow the streams produce an abundance of grain and dry forage for feeding animals during the short mild winters; where the mountain ranges with their luxuriant grasses will furnish an abundance of nourishment for nearly nine months in a year for thousands of animals, this condition should not be allowed to continue. It is not this section alone that suffers, for in every part of the State there is a feeling of fear of this disease that prevents the agricultural population from engaging in the production of beef-producing animals.

It is simply impossible under existing conditions to estimate the effect produced on the cattle industry of Tennessee by the infesting agents of this disease. Persons who are engaged in the breeding and raising of live-stock usually have trouble enough in other directions to overcome, but when we add the losses that annually occur from Texas fever among susceptible cattle, and reduction in prices they are obliged to accept on account of their cattle coming from a section that is more or less infected, the importance of how to improve the present condition becomes food for serious thought.

The task of educating the agricultural population of the State on a subject of such vital importance to their interests would seem to be the first effort that should be attempted, and how to accomplish this is the problem that must be solved if better conditions are to be expected.

In Tennessee only feeble efforts have been made as yet in the direction of cultivating a better understanding of this disease and its management. For a number of years the United States Department of Agriculture have had trained inspectors stationed in Tennessee, who have given what assistance they could in the management of the quarantine line, and at the same time they have made consistent efforts to bring about a better understanding of the conditions that exist. With the limited authority that is given them within the boundary lines of the State they have certainly done everything they can, but progress under the conditions that prevail and confront them is extremely slow. The first legislation covering the entire field of communicable diseases among domestic animals in Tennessee was enacted in 1893, and the management and control were placed with the State Board of Health through a State veterinarian, but the Legislature failed to provide an appropriation for the work and very little was accomplished. Not until 1897 were the State authorities provided with an appropriation for the work; from that period the State Board of Health made some feeble efforts through inspectors who had no training, and practically disposed of the State veterinarian by placing him upon a salary on which he could not be expected to be of any service. This condition of affairs continued until 1901, when the management of communicable diseases among domestic animals was transferred by the Legislature to the Bureau of Agriculture, and the provisions of the transfer provided for the appointment of a State live-stock inspector and three assistant inspectors; there was also a provision that the chief inspector might employ a veterinarian when he thought necessary. The appropriation for the inspectors was four thousand dollars per annum, while three hundred dollars was placed at their disposal for the purpose of employing a veterinarian. Under the provisions of this legislation a farmer and stock-dealer was appointed to take charge of communicable diseases among domestic animals, and he in turn appointed three assistant inspectors who were all without experience or knowledge of such work

The further provisions of the laws of Tennessee grant every facility and authority for the organization of a thorough and systematic sanitary service, and if intelligently directed could be expected to accomplish positive results; almost unlimited authority is given the Commissioner of Agriculture and the State live-stock inspector as the directing head of such an organization, while the county board of health of each county is made a local arm for the purpose of carrying out any instructions or rules and regulations they may issue on any subject that may arise, and the cost of enforcing such rules and regulations must be paid by each county in which their application becomes necessary.

Like all other sanitary subjects, if results are to be expected success must depend upon an intimate knowledge of the diseases of animals, and requires the attention and direction of persons of scientific training and education, and this the laws of Tennessee have never adequately provided for. For a number of years veterinarians of the State have endeavored to impress upon those in charge of the work the relation that should exist between the live-stock industry and the veterinarian, but little progress has been made. If the information obtained through scientific investigation is ever utilized for the benefit of the live-stock industry in the area now regarded as permanently infected with Texas fever, with a view of accomplishing satisfactory results, there must be some radical changes in the management of communicable diseases among domestic animals. With but few exceptions, the States in the South are in much the same condition as Tennessee in regard to the prevention of animal diseases, and some are even without any legislation. There should be uniform legislation on the subject by the States now affected with Texas fever that would provide for thorough organization, intelligent direction, co-operation with each other and the Federal authorities.

If this could be accomplished, then with the assistance that would be given by the Federal Government, some progress might be made in the eradication of this disease, and thereby place the live-stock industry of the South on an equal footing with the balance of the country. If it would be found that in some sections the destruction of the tick would be impossible or not practical, in such cases local restrictions and regulations could be put in force that would permit the shipment of cattle to market without the least danger to the cattle industry north of the quarantine line, and such procedure would stimulate a desire on the part of the agricultural population of the South to co-operate in the effort to remove the infesting agents of this disease. There is a large part of the infected area in Tennessee from which, with proper supervision, cattle could now be shipped to the North during any season of the year without the least danger of communicating Texas fever.

But let me say in conclusion, that there is back of this, as there is in many vital questions, this proposition, whether the powers that be in our government, national, State, municipal, and county, shall or shall not recognize scientific training; whether we cannot by the strength of our reason and the intelligence and energy of our acts shame the people of every State in which overpaid ignorance interferes with the development of an important industry, to turn out of the darkness, and bring to this higher development scientific training. In this question, as in many others of government, morals, and, in fact, almost every question which comes to us for solution, we find that the price of liberty is eternal vigilance. And so I ask, and in speaking I voice the aspirations and the wishes of a large number of the people of Tennessee, that this Association and its members do all in their power to encourage us to keep our vigils, so that in time, from this long and constant watch, unrecompensed though it be, better things will grow and better times will come, and, this accomplished, we shall be fully compensated and paid for all our services in the consciousness of duty well done. No higher reward do we desire.

SOME DISEASES INCIDENTAL TO PREGNANCY AND PARTURITION IN THE COW.

By A. M. Crichton, M.R.C.V.S.

Parturient Eclampsia. *Definition.* An epileptic and convulsive affection affecting the cerebro-spinal nervous system, accompanied by tonic and clonic spasms of the muscles of various regions of the body. It occurs in cows both before and after parturition.

Causes. Opinions differ in regard to the causes. By some it is supposed to be due to the retention of urinary elements in the blood; by others to hyperæmia of the brain, and by others still to reflex irritation of the nervous system, which brings about renal insufficiency and albuminuria; and exposure to cold winds and wet may bring on the disease.

Symptoms. The cow takes suddenly ill by foaming at the mouth, champing the jaws; full, wild-staring eyes, excited expression of countenance, head turned to the side, sometimes pulling back on the chain, licking at the foreleg, edge of the feeding-trough, or anywhere convenient; some cows bellow, others do not; twitching of the muscles of the body and limbs; sometimes difficulty of respiration; sometimes the cow becomes comatose. Most cases occur after calving; those which occur before are generally about mid-term, and in heifers. The attacks after calving generally occur from eight to sixteen days afterward. The disease occurs in cows of all ages, and generally in cows of lean condition. The reverse of this happens in parturient apoplexy, as it is a fat cow and a good milker that goes down with it. The most of cases do not get off their feet, although I have had them that did and lay for a night before getting up again. It might be possible to confound this disease with parturient apoplexy, but if we are careful to note the symptoms it should not happen. I will endeavor to point out the essential differences between the symptoms of the one and the other. There are about eight prominent symptoms that we should bear in mind when we are called in to see cases of this description. I will enumerate them as follows:

Parturient Apoplexy. It mostly occurs in cows at third calving and afterward; it never occurs before calving, and generally within forty-eight hours thereof. One attack predisposes to another one; most common in fat cows; patient fails to keep standing; rapidly followed by coma; earliest period of recovery is generally eight to sixteen hours; prognosis generally very unfavorable till Schmidt treatment found out; now more favorable.

Parturient Eclampsia. Occurs in cows of all ages, but mostly at first and second calving; occurs in cows before calving; if after calving, hardly ever before the eighth to sixteenth days; one attack not necessarily succeeded by another at next calving; most common in lean cows; patient mostly can stand through attack; the cow only occasionally becomes comatose; recovery takes place in a few hours generally; prognosis favorable and the treatment successful.

Now, gentlemen, these are the principal features in contrasting these two diseases, and I will now give you the most successful treatment that I have found for this disease after trying several remedies.

Treatment. First get the cow made comfortable in a good warm box or byre free from draughts, and as the morbid condition of the nervous system may be brought about by cold winds, wet, or draught, it is necessary to do this most needful part of the treatment; then, if the bowels are correct, I give no laxative, but prescribe from ʒiss to ʒij ext. belladonna every three hours as long as necessary. Bleeding may be resorted to if the foregoing treatment fails, but this is not usually the case. If the kidneys do not act promptly and sufficiently I prescribe ℥ij spt. ether nit. in a little cold water or along with the ext. belladonna; give about two quarts of linseed tea every few hours if the animal will have it, and this is usually all that is necessary for the treatment.

ABORTION. *Definition.* The expulsion of the fœtus and the fœtal membranes before the natural period. Abortion may be considered under two heads—non-contagious and contagious—and I will just consider the sporadic or non-contagious form. The normal period of utero-gestation in the cow is about nine-and-a-half months, some more, some less, and an abortion usually takes place from the third to the seventh or eighth month. After that month it may be termed a premature birth.

Causes. These are very numerous, and they may be divided into internal and external. Of the internal causes the general health of the cow is of the greatest importance. Any contagious or febrile disease in the system of the mother is a cause or factor in bringing about abortion, such as tuberculosis, pneumonia, indigestion, gastric tympany, excitement, nervousness, ergotized food, and, of course, the infecting bacillus.

External Causes. Cold and wet, changes of temperature, thunder and lightning, frights, narrow doorways, pressure over the uterus, overexertion, foul smells, ice-cold water, too much food, putrid, stagnant water, sewage, frosted turnips, potatoes, or roots of any kind, or rotten roots, mouldy, bad hay, etc.

I now come to the contagious form of abortion, and in giving the treatment for the sporadic variety I fancy it would be better to consider the treatment of both together, which I intend doing. This is by far the most serious disease of the two under consideration, and it is due to a special bacillus, which I believe was first demonstrated in the year 1895 by Professor Bang, he having made a series of post-mortems of cases, and also made several examinations microscopically of the liquid between the walls of the uterus and the envelopes of the fœtus. In cases that showed premonitory symptoms of abortion he had the cow killed and the experiments carried out as before mentioned, and in every case that he examined this liquid from the womb of the affected cow he could demonstrate the presence of this bacillus in great numbers, and they were unmixed with any other organisms; so, gentlemen, this surely places the theory of contagion beyond doubt. Professor Bang also cultivated this bacillus outside the animal body. He found that it was not easily cultivated by the ordinary methods, but he succeeded in growing it in blood serum rendered solid by the addition of gelatin and agar, and when it was grown in this medium it exhibited quite remarkable characters, absolutely distinguishing it from any other known pathogenic organism. In subsequent cases Professor Bang demonstrated the same bacillus in the discharges from the uterus or vagina of cows that had aborted. So you see, gentlemen, that contagious abortion is really a disease due to a specific organism. Another way in which its contagiousness has been demonstrated is by taking part of the discharge from an abortive cow and putting it into the genital passages of a pregnant cow, and in nearly every case the cow will abort some time afterward. I also believe that this bacillus is able to multiply outside the animal body, even in soil, dirt, or manure, and this may go a great length to demonstrate the first outbreak in a herd that was previously free from this disease, and it is sometimes very difficult to know where the contagion comes from in the first case in a herd of cows; but in reality it comes from some source—from an apparently healthy, newly bought cow, or from the land they are grazing on having been previously grazed by some infected cow, or from feeding stuff or fodder imported or brought to the byre from an infected place. There is always a cause for everything that happens in this life.

This bacillus is supposed to gain an entrance by the vulva into the womb or become absorbed through the mucous lining of the vulva into the circulation (because abortion can be produced by injecting the bacillus hypodermically); it then gets into the circulation, locates itself in its habitat, so to speak, and sets up the symptoms that we see terminate in the expulsion of the fœtus and membranes prematurely.

Causes. The primary cause is, of course, the bacillus. How does it get there? It is sometimes due to an infected bull during copulation; sometimes to a newly purchased cow brought from a tainted herd. This will bring it into a byre that was never known to have a previous case, and generally when one cow aborts there are several if not all in the same house. One reason given for this is the contagious nature of the disease, and if the cow retains the after-birth there is always a discharge of infected material, and this soils the tail and thighs, and by means of the tail the infective material is switched about to the other cows in the same house. It may also be disseminated by the discharges into the gutters running past the other cows. By inserting infective material into the genital passages of a healthy pregnant cow you will generally have abortion in from fifteen to thirty days. As a rule, the cow's health is not much affected; it is purely and simply a disease of an infective nature that affects the vagina and womb, fœtus, and fœtal membranes of pregnant cows, mares, and ewes.

Prevention and Treatment. I intend to make this as short as possible. To consider measures of prevention we must think about what will keep a stock in health as well as to the measures that are necessary to bring an outbreak to a speedy termination. With regard to the former, every person that buys a cow is exposed to getting his herd infected. When buying a new cow isolation for a period is a safe plan. On buying a new stud bull isolate for a time, and disinfect penis and genitals for some time before using him for stud purposes. There is a big risk in keeping a bull for the service of outside cows; he should be disinfected and washed after each service.

To bring an outbreak of this disease to a speedy end there are a great many difficulties which present themselves to us. The first is that for weeks and probably for months a cow may be affected and capable of infecting other cows without presenting any symptoms pointing to her dangerous state. It, therefore, often happens that before the existence of the disease in the herd is suspected and realized a lot of the cows become affected. A cow is infected before she has aborted, but she is more dangerous after and for several weeks, as she then liberates an army of bacilli capable of infecting all the other cows in the herd. When she aborts it is a good plan to burn the fœtus and membranes. If this cannot be done bury them away from access to cows, and disinfect them before burial, and over the grave put some quick-lime.

The cow-house will require to be disinfected often and thoroughly, and the cows therein will also require to have the vagina washed out, and the tail and thighs, udder, and even up the sides, over the back, etc.; in fact, as far up as the tail reaches, well sponged or brushed with a reliable antiseptic to destroy the bacilli, and the more thoroughly and frequently this is done the better the chance of eradicating the disease. There are various agents that may be used for this purpose. Some taint the milk and are not practicable. Sulphate of copper is good to use, and does not taint the milk—six ounces to one gallon of soft water; also sprinkle the floor and gangway with powdered lime; and as a further precaution the outer genitals, root of the tail, and, in fact, the whole tail, it is well to sponge once a day with a solution of Jeyes' carbolic or hydrarg. perchlor.: hyd. perchlor., ʒijss; acid hydrochlor., ℥ijss; aqua, 2 gallons. This solution is dangerous, and any of it that is left should be buried; but it cannot be prepared in metallic vessels, for it corrodes them. This disease in its treatment involves a great deal of trouble and labor. When the number of cows that have aborted are many, and there is no chance of isolating them, the best plan is to put the aborted cows at the lower end of the house, so that the urine does not run past the healthy ones; this will reduce the risk of infection. If a cow aborts this year it does not follow that she will abort next year; in fact, experience shows that it is the exception, not the rule.

In regard to the manure, is it not possible that the abortion bacillus will retain its vitality for a length of time in it? I would recommend in this case that the manure be mixed with a sufficiency of lime and left for a good long time before being put onto land that cows will be grazed on afterward. I must say that the wooden cow-houses, when they get rotten, and without paved gutters; the want of cleanliness, houses badly lighted, badly ventilated, badly drained, and in some cases not drained at all, all militate against the veterinary surgeon in stamping out any contagious disease in this country.

INVERSION OF THE UTERUS. This is a very serious condition in any female animal.

Causes. Retention of fœtal membranes, irritation of mucous membranes of the organ at the time of parturition, wounds, scraps, hard calving, injuries during calving, overfeeding, tympany, indigestion, ice-cold water to drink after calving.

Treatment. Now, when the cow does put out her uterus, the first thing to do is to get to the case as soon as possible after you have been notified about it. Some farmers know how to wrap it up in a damp, hot blanket and send at once for the veterinary surgeon, and when he arrives the first thing he should do is to remove the cleansing, if necessary. Cleanse the organ, dry it with a cloth, and put some antiseptic and soothing dressing upon it, preferably an oily preparation, and return it by gentle manipulation, and put on a truss or West's uterine clamp, not screwed up so tightly as to prevent the animal from urinating or to hurt the vulva. The cow generally strains a good deal after this. To combat this we give some anodyne mixture, chloral hydrate, chlorodyne. Raise the hind-quarters with freshly-cut sods. There is some danger of metritis, so a little tr. aconite and a mild laxative will prove very beneficial.

RETENTION OF FŒTAL MEMBRANES. SEPTICÆMIA. This disease is due generally to a cow calving before the natural period, or from debility, weakness, want of blood, and it mostly happens in hot weather. Dealers' cows that are "faired" and "trained" are very liable to retain the cleansing, and so are very liable to have septic poisoning.

Causes. The anatomical arrangement of the uterus in the cow, difficult parturition, abortion. Aged cows retain the membranes longer than young ones, as a rule. Contraction of the cervix uteri will prevent expulsion of the fœtal membranes. Cows driven long distances to fairs and trained long distances produce fatigue and reduce the general health of the animal.

Symptoms. Usually part of the membranes protruding, but if not there is a certain amount of shifting of the feet, uneasiness, urinating, and passing feces often; then there is twitching and curling of the tail. One very prominent and reliable symptom is that the tail is carried farther off from the body than usual, in a kind of an arched manner. If putrefaction has commenced there will be a dirty, sanious, offensive discharge from the vulva, mingled with shreds of putrid membrane. At this stage there is generally constitutional disturbance; the animal is dull, dejected, appetite lost or bad, respirations hurried, temperature elevated, secretions suspended. The complications that follow this state of affairs are generally septicæmia, metritis, metroperitonitis, vaginitis, leucorrhœa, etc.

Treatment. If the membranes are not expelled in three or four days or less they are better removed, and the uterus irrigated with a solution of ozophene, chinosol, or suitable disinfectant. There are various preparations that can be used for this purpose—carbolic acid, chinosol, ozophene, Jeyes' fluid, potassium permanganate. I find about two irrigations sufficient. If the cow strains badly I give anodynes. If in weak health and of low condition, tonic and external antiseptics are indicated. If septicæmia is feared, give plenty of external antiseptics, with tonics, stimulants, and good food, easy of digestion and assimilation, and try to keep the animal's strength with milk, eggs, gruel, etc. Sulphites, hyposulphites, sulphocarbolites, quinine, hydronaphthol are indicated; and to prevent infection of healthy subjects the patients should be isolated, excreta promptly burned, and covers, etc., used by them disinfected before being used with other cattle.

INVERSION OF THE VAGINA, or "showing of the reed," as the farmers call it in this district, is often seen in cattle. The causes are injuries, rupture of the internal bands that hold the organ *in situ*, constipation, protracted parturition, fatigue from long travelling after parturition, abortion, placental retention. Old cows when heavy in calf show it often. Low stand behind, and too much fall for the stand, so that when the cow lies down the whole weight of the calf, stomach, bowels, etc., are thrown back on the os uteri, and this tends to relax passages and to force out the vagina.

Symptoms. Generally makes its appearance when the animal is lying, and mostly seen in pregnant cows. The vagina differs in appearance from the uterus, as there are no cotyledons on it; and it is also of less volume, with a small, round orifice in the centre.

Treatment. Cleanse and return it after dressing with a little ol. carbolic. This is not a very dangerous affection, although it is sometimes very troublesome. I had a case here a short time ago; this was a prize Kerry cow, and she wore a truss for three months before calving, and she calved here a few weeks ago, but did not cleanse. The os contracted very shortly after the calving, and I could not remove the cleansing, but I irrigated the uterus with a solution of osophene, 1 : 30, and she has done well.

LEUCORRHŒA, commonly known as "the whites," is a chronic discharge from the vagina and womb, of a white, flaky color; sometimes inodorous, at other times of a rusty color, and mucopurulent and very offensive.

Causes. Debility, difficult parturition, uterine excitement, polypus, prolonged irritation of the genital passages, and as a sequelæ to tuberculosis. Sometimes the bull gets balanitis, and gives the cow he serves the disease, and sometimes she aborts.

Symptoms. Discharge from vulva, which is generally pale, bloodless, and flaccid. In other cases where the discharge is flaccid the mucous membrane is rough and reddened and thickened, with stricture of the vagina as an accompaniment. Animals so affected are frequently in œstrum, but very uncertain as to breeding, and if they do become pregnant they very often abort. Some constitutional disturbance is usually present, the milk diminished, the appetite very indifferent, and the animal fails in condition.

Treatment. In the primary stages cleanliness, frequent injections of tepid water, with weak solutions of alum, zinc sulphate, and potassium permanganate; the administration of a saline laxative, followed by tonics and laxative diet. In secondary or chronic cases injections of tannic acid, ferri sulphate, boric acid, iodoform, or, if the discharge is offensive, acid carbolic, 1 : 40, or ozophene, 1 : 30, may be used. Internally, mineral tonics, iron or copper, for preference, with quinine, with generous laxative, nutritious diet, will generally result in a cure.

METRITIS AND METROPERITONITIS. *Definition.* Inflammation of the uterus, inflammation of uterus and peritoneum. I shall consider these diseases under two heads: 1. Simple metritis is the simple inflammation of the organ. 2. Septic metritis, inflammatory action due to the presence of a bacillus in the uterus and in the discharges therefrom.

Causes. Unskilful and rough usage at calving, injuries, colds, draughts, retention of placental membranes, external violence, septic infection.

Symptoms. Usually ushered in with rigors, pain on pressure over region of womb. Tumefaction of vulva, with heat and dryness; then follows a discharge of purulent, offensive matter from the vulva, increase of temperature, quick, small pulse, increased respirations, grinding of the teeth, secretion of milk suspended; bowels constipated; on passing feces animal evinces pain. On examination per vaginam the os uteri will be found hot and sensitive. Sometimes discoloration is seen on examination per vaginam.

Treatment. Explore vagina if possible and ascertain if fœtal membranes are away. There may be some shreds left which may be putrefying in the womb. If so, wash out with a reliable disinfectant and antiseptic, give a mild laxative with anodynes, and apply hot-water blankets around the abdomen and see to the general comfort of the animal. If we fear the metritis is of a septic origin try the administration of internal antiseptics and stimulants, with nutritious diet and thorough irrigation of the uterus and vagina every day at least with suitable antiseptic solution. Some recommend packing the womb, but I have never resorted to this in cattle practice.

POLYPUS IN THE VAGINA. These are frequent in the cow, attached to the mucous membrane a little distance from the orifice. The shape is generally that of a pear. I removed one weighing four and one-quarter pounds from the vagina of a cow lately by ligature and excision, and used a simple antiseptic dressing for a few days. The cow did all right.

PARTURITION. Now, gentlemen, I just wish to say a few words in regard to parturition in the cow. As a rule, the messenger that comes for us in these cases is sweating and out of breath, and will gasp out that Mr. So and So wants you to come to a cow that cannot calve. After asking a few questions we pack up a few necessary instruments, ropes, and the usual paraphernalia, and proceed with all speed to the scene of action. When we arrive there and begin to explore the case we generally find that Mr. Handyman has been there before us, and has spoiled the case and left it, because he could not do it. There are just a few positions that I wish to say a few words about. 1. Breech presentation. 2. One fore and one hind limb. 3. Two forelimbs, with head away back. 4. Twist of neck of womb.

In breech presentation push back buttocks of calf right as far up and back as you can, then get hold of foot and turn sideways and upward, and you will get it into passage quite easily. Do likewise with the other foot, and the calf generally comes quite easily.

In one fore and one hind you require to be able to judge which way the fœtus will come away easiest. Generally to push back the forelimb is safe practice, as by doing so you have no trouble to look for the head; then get up the other hind limb, and the fœtus comes away with little trouble.

In the case with the two forelegs with the head back the position is generally the result of long-continued straining of the cow without delivery. If the head cannot be reached by the hand try a blunt hook, and, if unsuccessful, then try and remove one forelimb, which is sometimes a very difficult job. You should then be able to reach the head and get the fœtus away. Then, as regards twist or torsion of the womb, this generally requires the cow to be thrown and rotated from one side to the other until the twist is undone, and then delivery is usually easily enough accomplished. Some veterinary surgeons recommend jamming the fœtus in passages and take it away in that manner. After-treatment is anodynes if necessary, and fomentation if needful.

PARTURIENT APOPLEXY. This disease used to be very fatal in the cow until Herr Schmidt, of Kolding, found out the potassium iodide treatment. There are a good many theories put forward as to the cause, such as clean milking immediately after calving; by ptomaines, the products of decomposition of food in the stomach and intestines (but I look upon this as the result, not the cause, of the disease); by anæmia of the brain, and by auto-intoxication. I favor this view, and believe milk-fever is due to some toxic material that gains entrance or is manufactured in the animal economy, and thus gaining access to the blood-stream. It may be due to some bacillus, but for that I cannot say. By some it is supposed to arise from the liver not being able to cope with the waste products in the blood during the time of rapidly rising lactation, especially as the liver and, in fact, all the glands in the animal economy have been in a state of comparative quiescence during the dry period. The light food the animal gets when dry is suddenly altered to stimulating food, and this condition may give rise to the auto-intoxication that produces the symptoms that we all so well know; and the eight principal symptoms have been put before you when contrasting them with puerperal eclampsia, so I will go on to the treatment and sequelæ. This much, then, can be said of milk-fever, that it may be considered a genuine auto-intoxication caused by the accumulation or manufacture in the system of toxic material during the first stages of lactation.. This circulating through the blood causes the symptoms of poisoning of the whole system of the animal. In relation to this theory I would point out that only good milkers are attacked, and that those which have been dry for some time are more liable, especially those which have been fed on rich food when dry, and cows that are hardly ever outside the byre. These sort of cattle, after an easy calving, go at the milking in a hurry (as we may say), and arrive at the height of lactation very quickly, and in this way the intoxication occurs, owing to the overburdening of the liver and kidneys with work. Just as when the air we breathe is polluted with a certain amount of CO_2 we show the effects of CO_2 poisoning, so when the toxic material gets to a certain percentage in the blood of the cow she shows the symptoms of poisoning. Of the percentage that it takes I cannot say, but this is the theory I hold in regard to milk-fever, and upon this I base my treatment; and whether it is a product of casein, nuclein, albumin, or what, I am not prepared to say. Clearly it is the province of our scientists to elucidate such problems, for the general practitioners have neither time, money, nor appliances to do so.

Treatment. I have tried a number of remedies in milk-fever. I have tried the following injections into the udder, and they have proved fairly efficacious: chinosol, from 40 to 60 grains, according to the size and weight of the cow; boiled water, 2 quarts; and after milking the cow clean and disinfecting the udder and teats, when about the blood-heat I inject one-fourth into each teat. I also give the following every three hours alternately if the cow can swallow, and if in a weak state I give 4 ounces of spt. ammon. arom. in 1 pint of cold water, and if she cannot swallow I inject with the stomach-pump: Liq. ammon. acet. conc. (1 in 7), ʒij; spt. ether nitrosa, ℥ij; aqua, ℥xij; then whiskey, ℥iij, or spt. ammon. arom., ℥iij; aqua, ℥xij. I sometimes use the following injection, which also is very good: Iodine resub., 4 grs.; pot. iodide, 4 to 5 drs.; boiled water, 2 quarts, to be used as the foregoing. The drenching part of the treatment must be done with great care.

The sequelæ are: mechanical bronchitis from regurgitation of food, mammitis, metroperitonitis, from giving drastic purgatives;

pneumonia, bruised knees and hocks, fatty degeneration of the muscles of the thighs from bruises, paralysis, choking at drenching. If a cow has tuberculosis in a latent form and takes milk-fever she is sure to die. I sometimes empty the rectum and bladder, and this sometimes gives the animal relief. I also sheet up the animal well, as there is a tendency to a subnormal temperature. I have tried stimulating embrocations along the spine when the cow was long in getting up, and when symptoms of paralysis are shown I prescribe doses of nux vomica. A great deal of success lies in the manner in which the cow is nursed. I give the attendants orders to turn the animal every four hours or so, but sometimes they neglect to do this very necessary part of the treatment, with the result that the cow gets her knees, hocks, etc., bruised, and then when she wants to rise she cannot, because of the sores and bruised condition of the muscles. There has been more success in the treatment of this disease in late years than before.

Now, gentlemen, I think I have taken up your time sufficiently, and I will come to a conclusion by saying that the lot of a country veterinary surgeon has its bright side as well as its dark side. He generally gets his clothes more soiled and is generally not so stylishly got up as his city brother. We have, as a rule, more dirty work and smaller pay for it, and we must appear in harmony with our work.

I beg to thank you for your patient hearing, and I trust that my effort will be rewarded by the members all participating in a good discussion.—*Veterinary Journal*, July, 1902.

FORMIN AS AN INTESTINAL ANTISEPTIC. According to the experiments of Soebisch, formin (hexamethylene-tetramine) is superior to all other substances ordinarily employed to disinfect the intestinal tract. It is very soluble in water, and possesses an important advantage in being non-poisonous. The dose for a person is two grains daily.—*Bull. Gen. de Therapeut.*

HYPERTROPHY OF THE HEART. The subject, a pig, died suddenly while being driven to the slaughter-pen. At the autopsy, made by Schrader, the heart was found to be very much hypertrophied, the weight 770 grammes, exceeding by 500 grammes the weight of the normal heart of an animal of the same size. The pig, which weighed 200 pounds, presented no other abnormal peculiarity.—*Ibid.*

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
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CORROSIVE SUBLIMATE IN FOOT-AND-MOUTH DISEASE. Hirzel, after treating a herd of cattle infected with aphthous fever, came to the same conclusions previously made by others. The sublimate injection, intravenously or subcutaneously, did not prevent the disease in those animals exposed to the infection. Likewise, it did not have any influence upon the evolution of the disease when given after the animal had shown symptoms. Its effect was neither prophylactic nor curative. In some cases the injection produced mercurial intoxication in from ten to fourteen days. The most prominent symptoms consist of moist, exanthematous scales around the udder and vulva in the cow, and the base of the tail, mouth, head, and neck in younger animals. The animal generally makes a rapid recovery. Hirzel has also observed that a previous attack of foot-and-mouth disease gives a degree of immunity to the affected animal which within a certain limit is hereditary to the offspring. Much was only a short time ago claimed for Bocelli's treatment of foot-and-mouth disease, but nearly all observers who have employed this method are in accord that it deserves little or no merit.—*Ann. de Med. Vet.*

MECHANISM OF THE PATHOGENIC ACTION OF SOME HELMINTHS. The pathogenic rôle of certain nematodes has been contested, especially in gastro-intestinal strongylosis of sheep. The rôle of these parasites in the abomasum can be readily determined from the fact that after their expulsion the cachectic symptoms commence to disappear.

The sclerostoma of the horse, immediately after death, are found adherent to the mucosa, to which they are fixed by the sucking action of the mouth. In this manner they nourish themselves by drawing blood from the intestinal capillaries, and at these points leave small wounds of the mucous membrane visible to the naked eye, through which infection of intestinal origin may take place.

The tricocephala of the pig penetrates the mucous membrane for a distance of 1 to 1.5 centimetres.

The ascarides of the horse do not produce any alteration in the mucous membrane.—*Soc. des Sc. veter. de Lyon.*

ANOMALY OF THE KIDNEYS. In an adult pig the two kidneys were united at their postero-inferior part by a commissural band of renal tissue 3 centimetres wide and 1.5 centimetres thick, giving them the resemblance of a horseshoe. Otherwise the organs were normal.—*Ann. de Med. Vet.*

ABSCESS OF THE SPLEEN CAUSED BY SWALLOWING A NEEDLE. Subject, colt, aged eighteen months; sick four days. Symptoms: Loss of appetite, chills, shallow, painful respirations, colicky pains, lying down in the left sterno-abdominal position. Percussion of chest normal on both sides; percussion over left hypochondriac region is painful. On the right side the vesicular murmur of the lungs was increased and on the left side completely absent. The cardiac sounds were strong and metallic. Bergeon suspected pleurisy. The next day the abdominal pain increased and the horse died.

Autopsy: Acute peritonitis, especially in the region of the stomach; liver resembling that seen in septic infection; spleen the seat of a tumor the size of a man's head adherent to the stomach and diaphragm. The tumor was a large abscess in which was found a needle 4.5 centimetres long. The passage of the needle, which the animal swallowed, through the stomach was indicated by a small cicatrix.—*Ann. de Med. Vet.*

RENAL COLIC WITH ALBUMINURIA AND HÆMATURIA. Brun reports a horse, aged nine years, suffering from attacks of abdominal pain while in the stable. The symptoms were not diagnostic. Rectal exploration revealed nothing except a few drops of coffee-colored urine escaping from the urethra. The next day intestinal fermentation necessitated the use of the trocar. Examination of the urine showed that it contained a large percentage of albumin, some blood, pus, and epithelial débris. This fact showed that it was here a question of a nephritis which had been the cause of the several attacks of intestinal indigestion.

A second examination of the urine eight days afterward revealed no abnormal elements in this excretion, and up to that time the intestinal trouble had not recurred.

. . . Brun relates a second case, clinically almost identical with the first. He expresses the opinion that in all cases of abdominal disorders accompanied by pain which is not plainly attributable to indigestion, the examination of the urine should not be omitted. In fact, in nearly all internal diseases in which the pathology and diagnosis are not very evident, an examination of the urine should be made.—*Ibid.*

TOXIN OF THE TAPEWORM. The researches of Messineo and Calamida support the ancient theory of the injurious effects of tapeworms and some other intestinal helminths, caused by the elaboration of a toxin by them rather than by their mechanical irritation.

A watery extract of these parasites was injected under the skin into the peritoneal cavity and the brain of a large number of guinea-pigs, rabbits, and dogs. The symptoms in all cases were uniform: staring coat, trembling, general depression, paralysis of the hind-quarters, and lowering of the temperature.

Autopsy: Capillary dilatation of the liver with small hemorrhagic foci at the periphery of the hepatic lobules; granulo-fatty degeneration of the hepatic cells and infiltration of the perivascular connective tissue, with leucocytes. The kidneys showed fatty degeneration of the epithelial cells, capillary dilatation and hemorrhagic foci in the Malpighian glomeruli. Capillary dilatation in the brain, but no lesion of the nerve cells. The authors attribute to the tænia a special toxin of pathogenic action.—*Ibid.*

EXOCARDIA. Schrader relates the following anomaly: A lamb presented underneath the sternum a round tumor, which, after examination, was recognized as the heart. Attempts at reduction threatened asphyxia. At the autopsy—eight days after birth—the enlargement was found to consist of the heart surrounded by the pericardium, which had descended through a round opening in the sternum. The pericardium was firmly attached to the opening in the sternum, which was at a point corresponding to the place where the apex rests in a normal state.—*Ibid.*

REMARKS ON THE SERO-DIAGNOSIS OF GLANDERS. The classical methods of experimental diagnosis—inoculation and malleination—are not always practicable and do not always furnish precise results. The sero-diagnostic method, therefore, deserves consideration.

This method of sero-diagnosis, based upon the *phenomena of agglutination,* has for some years been investigated by diverse experimenters in reference to the blood serum obtained from glandered horses. Recently Rabieaux, of the Lyons Veterinary School, has made known the result of his work carried on during the last two years in the laboratory of M. Galtier. These researches were confined to glandered horses (eight chronic, one acute) and eleven healthy horses.

The phenomena of agglutination of serums glandered or nonglandered vary in intensity and rapidity according to the temperature to which they have been previously exposed and the degree of dilution. Rabieaux found that the agglutination in cases of glanders manifests itself very intensely in a dilution of 1:1500, and takes place rapidly when the serum is obtained from a horse with a high temperature—a condition in which the result of malleination is unreliable.

An injection of mallein does not modify the agglutinating power of the glanders serum if it be abstracted after the temperature has again become normal. During the period of elevation of temperature this power is increased.

From his researches Rabieaux has formulated the following conclusions:

The difference between the agglutinating power of the serums obtained from the glandered and from the healthy horse is sufficiently decided that this property may serve as a means of experimental diagnosis of glanders.

An animal which furnishes a serum with an agglutinating power in a dilution of 1:1000 should be considered as suffering from glanders.

The method of the sero-diagnosis of glanders, because of its technique, belongs to the laboratory. Therefore, it should not entirely replace the experimental methods of diagnosis ordinarily employed, which are much more practicable and can be practised in almost any place. Nevertheless, conditions may arise in which the other methods fail or cannot be successfully carried out. In such instances the examination of the blood serum may be employed as a control method, or it may be the only condition upon which a diagnosis is possible. It is especially serviceable in making a diagnosis upon the cadaver, and as such is useful in the inspection of meat.

It is useful, when examining a specimen of suspected blood serum, to examine at the same time the serum from a healthy horse. —*Ibid.*

EDITORIALS.

ARIZONA—NEW YORK.

It is refreshing, indeed, to read the modest account of what one active, earnest man can do in influencing for good public work in a State or Territory. When one considers what difficulties must necessarily confront veterinary sanitary control work in a Territory like Arizona, and learns of what has been accomplished in the control of infectious and contagious animal diseases, and to conjecture what immense sums of money have been saved to the people thereby, he is led to wonder how all of this great work could be accomplished by one active spirit; while, on the other hand, we are pained to read the confession of the President of the Association in the Empire State, acknowledging that their veterinary sanitary control work is still in the hands of laymen or ignorant pretenders, that their State Veterinary Practice law is worse than a dead letter; that their colleges are only half supported, while in numbers and personal success the profession is unusually numerous and very well provided with worldly goods and monetary resources.

AN ASSURANCE SOCIETY.

The need of an assurance organization for the veterinary profession has long been a source of consideration without any definite plans for the same. Whenever a special case among our members finds us without any such society for the protection or support of one of our number the subject again becomes uppermost in our minds. Now, the American Veterinary Medical Association, in convention assembled, has indorsed the project under the strong advocacy of a few members of the Association who have long studied and earnestly advocated the proposition. We would offer as a suggestion to those who will specially consider its feasibility during the ensuing year, that it be started with the American Veterinary Medical Association membership as a basis; that the Association advance the dues to five dollars per year, and that the two dollars be placed as a death benefit fund. That in addition a small charge might be added annually to provide a sick benefit fund; that this fund be measured by the age of the applicants, all unappropriated funds to be set aside as a special emergency fund. The annual dues could be maintained irrespective of one's continuance as a member of the Association, and others could join without membership in any association.

STATE GREETINGS.

THE New York State Society wants its sister organization in Pennsylvania to attend to its own business, as it does not want it known what they stand for over there outside the borders of its own Commonwealth.

It wants a special privilege to condone the acts of one of its members, an officer who teaches the false doctrine that tuberculosis may be engendered by bad sanitary conditions, because he is in the employ of a commercial milk aggregation.

It claims the special right to condemn a flagrant act of professional treachery unequalled in the history of veterinary progress at home or abroad, on the floor of the national organization, and then go home and condone the offence and apologize for hurting the feelings of one of their number.

It wants a special right given to a select few to establish State laws of such a character, under the cloak of higher veterinary education, that has practically strangled two of the best and oldest veterinary institutions in the land, and when, to avoid just criticism for their own failure, to import citizens from other States, implant them in their own Commonwealth to grow for three years to swell the roll of students.

It wants the privilege to dictate to other States that their laws shall be so arranged as to accept without question their offspring, and, when refused, to clandestinely libel the good name of members of a sister State Board in language it would not have the courage to write of them directly. Pennsylvania should not be alarmed at the attitude of their New York brethren, but continue to aid them by a just and well-merited criticism from time to time. It is wholesome and educational.

THE JOURNAL wishes the Chief of the Bureau of Animal Industry a pleasant trip abroad. We are assured of the profit that will accrue to our live-stock industries, the credit that will fall to our Bureau of Animal Industry, and the increased respect at home and abroad for our Department of Agriculture. To this department there has been no one man attached thereto who has brought more credit to its worth, maintained its good name, or rendered richer services to the interests it guards than Dr. D. E. Salmon, Chief of the Bureau of Animal Industry.

ASSOCIATION PROCEEDINGS.

INTERSTATE ASSOCIATION OF SANITARY BOARDS.

Report of Committee on Line and Open Season.

WICHITA, KANSAS, September 23, 1902.

TO HONORABLE W. H. DUNN, PRESIDENT:

We, your Committee on Line and Open Season, beg leave to report as follows:

1. We recommend to the Department of Agriculture that the national quarantine line remain the same as last year, with the exception that the counties of Moore and Bledsoe, in the State of Tennessee, be placed above said line after being examined and recommended by an agent of the Bureau of Animal Industry.

2. We recommend that cattle from below the Federal quarantine line be allowed to be moved to points above said line within the States of Texas and Kansas and the Territory of Oklahoma between November 1 and December 31, 1902, and to points within the States of Virginia, North Carolina, Tennessee, and Missouri, and the Territories of Arizona and New Mexico between November 1, 1902, and January 31, 1903, under the sanitary regulations provided by these States and Territories and permitted by the local authorities in charge, provided that no such movement of Southern cattle shall be allowed into any of these States or Territories where proper local regulations are not enforced.

3. All cattle from the quarantine district destined to points outside of the States and Territories above named may be shipped without inspection between November 1, 1902, and January 31, 1903, inclusive, and without restrictions other than may be enforced by local regulations at point of destination.

4. We recommend that cattle from the two northern tiers of counties in Arkansas be admitted into the State of Missouri by inspection from February 1 to March 31, 1903.

Respectfully submitted,

DR. J. C. NORTON,
Chairman.
M. M. HAWKINS,
Secretary.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Committees, 1902 *and* 1903.

Executive.—Tait Butler, J. F. Winchester, H. L. Ramacciotti, F. Torrance, S. Brenton, W. Horace Hoskins, A. H. Baker.

Finance.—J. E. Ryder, B. McInnes, F. Abele.

Publication.—M. H. Reynolds, R. R. Bell, R. P. Lyman, C. J. Marshall, C. W. Gay.

Intelligence and Education.—E. B. Ackerman, A. T. Peters, W. J. Hinman, Paul Fischer, E. M. Ranck.

Diseases.—L. Pearson, V. A. Moore, S. D. Brimhall, L. Frothingham, R. R. Dinwiddie.

Army Legislation.—W. H. Lowe, Wm. Dougherty, Austin Peters, M. E. Knowles, Wm. H. Kelly.

Resolutions.—D. E. Salmon, G. A. Johnson, N. S. Mayo, G. R. White, Alexander Burr.

Pharmacopœia.—L. A. Merillat, R. R. Bell, D. King Smith, E. L. Quitman, J. J. Repp, E. M. Ranck, H. D. Hanson.

P. S. V. M. A. DOINGS.

President Rhoads suggested many salient thoughts in his semi-annual address, and offered some field of work for every member of the Association.

The meeting was not as strong in papers offered as usual, but was rich in valuable talks and discussions of live subjects by those who were present.

President Sallade, of the State Board of Veterinary Medical Examiners, was there with his arm in a sling from a broken clavicle eager to discuss a new registration law of veterinarians in the State.

Everybody was pleased to find Dr. Noack, president of the Schuylkill Valley Veterinary Medical Association, in improved health and so active in the pleasant entertainment afforded the visiting veterinarians.

The veterinary poet of Allentown was much in evidence at the semi-annual meeting of the Association.

Everybody was pleased to see our aggressive sister association of New Jersey represented by one of its faithful members, Dr. L. P. Hurley, of Hopewell.

The "Good Roads" meeting inaugurated by President Rhoads proved a very interesting and instructive gathering. The lessons taught through stereopticon screen presentations of this live subject of the day were very impressive indeed, and awakened a deeper interest in the subject in all those who were privileged to attend.

AMONG THE COLLEGES.

University Veterinary College, Kansas City, Missouri. First annual announcement received—Session 1902–03. G. W. Werner, President; J. V. Cowles, Vice-President; W. J. Wilson, Secretary; W. J. Gatchell, Treasurer.

Western Veterinary College, Kansas City, Mo. Sixth annual announcement received. Changes in faculty—Albert A. Immel, D.V.S., Bacteriology, in place of James B. Black, V.S.; Theodore W. Hadley, Veterinary Materia Medica, in place of Frank D. Rowell, D.V.S., M.D. Added, Joseph S. Snider, M.D., Histology, and Wm. P. Cutler, M.D., Hygiene and Sanitary Science. Dropped, James B. Black, V.S., Operative Surgery.

The Western Veterinary College opens its Fall Session of 1902 in its new building in Kansas City, Mo. The building has been specially constructed for the maintenance of the school.

Chicago Veterinary College, Chicago, Illinois. Catalogue session 1902–03 received. No special changes are noted. Post-graduate course will be continued in connection with the regular course.

Ontario Veterinary College, Toronto, Canada. Catalogue session 1902–03 received.

Collins Veterinary Medical College, Nashville, Tennessee. Fourth annual announcement received.

Veterinary Department, University of Pennsylvania, Philadelphia, Pa. Announcement for the eighteenth annual session, 1902–03, received. No special changes noted.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

The annual meeting of the Board convened at the School of Industrial Art, Broad and Pine Streets, June 16 and 17, 1902, at 9 A. M. each day. Members present: Drs. Jas. W. Sallade, Jacob Helmer, W. H. Ridge, and W. Horace Hoskins; absent, Dr. J. C. McNeil.

The following twenty applicants presented themselves for examination before the Board: W. J. Kirk, Sharon, Pa.; Joseph McClintock, 1720 N. 9th St., Philadelphia, Pa.; Frederick Weitzel, 100 Park Way, W. Allegheny, Pa.; Hyma Feigenbaum, 3224 Butler St., Pittsburg, Pa.; B. Tilghman Woodward, 139 N. 60th St., Philadelphia, Pa; Geo. L. Nicholas, 504 Walnut St., South Bethlehem, Pa.; Robert O. Rothermel, Reading, Pa.; John W. Vansant, Hulmeville, Bucks Co., Pa.; Arthur A. Harmon, Chelmsford, Mass.; H. Clay Campbell, State College, Pa.; Howard Baker, Dudley, Mass.; Summer C. Babson, 3613 Locust St., Philadelphia, Pa.; Guy T. Cole, 122 Benedict Ave., Norwalk, Ohio; Frank U. Fernsler, 621 Chestnut St., Lebanon, Pa.; Samuel Burrows, Vet. Dept., Univ. of Penna., 39th and Woodland Ave., Philadelphia, Pa.; Kenneth E. Paget, 415 Spruce St., Scranton, Pa.; F. C. Bigelow, 1523 N. 55th St., Philadelphia, Pa.; Anthony J. McCloskey, 8707 Shawnee St., Philadelphia, Pa.; John H. Zollinger, 1336 Marshall St., Philadelphia, Pa.; P. J. Purcell, Bradford, Pa.

All of the above-named were granted the license of the Board with the exception of Dr. P. J. Purcell.

A meeting of members of the Board was called to order on June 17, 1902, at 3 P. M., President Sallade in the chair; Dr. McNeil the only absent member. Minutes of the December meeting were read and approved. Secretary reported expenses for the year. President Sallade directed auditing of the report to be made by Dr. Jacob Helmer, who approved the same, and report was ordered filed.

Bills were reported by the Secretary for expenses, clerical, legal, etc., to the amount of one hundred and nine dollars and forty-one cents ($109.41). By the members of the Board for railroad, hotel, etc., to the amount of twenty-one dollars and ninety-four cents ($21.94), and orders were drawn for the respective amounts.

Dr. Helmer moved, and seconded by Dr. Hoskins, that fifteen dollars ($15.00) be donated the School of Industrial Art for the use of their rooms for holding examinations. Carried, and bill paid with others.

The following officers were elected for the ensuing year: President, Dr. Jas. W. Sallade; Secretary-Treasurer, Dr. W. Horace Hoskins.

The Secretary reported several violations of the law at different points in the State, which were referred to the Secretary, with power to take such action as he deemed necessary.

On motion the meeting adjourned.

W. HORACE HOSKINS,
Secretary.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

THE outcome of the thirty-ninth annual meeting of the Association, held at Minneapolis in September, is yet to be determined. The increasing interest, attendance, and membership of the Northwest veterinarians and of Canada, which has recently come under our wing, are future factors whose value cannot, at this time, be measured. The cordial welcome bestowed at the hands of the Minnesota veterinarians will be remembered with great pleasure, and the few slight unpleasant incidents will be, it is hoped, forgotten in the great good accomplished.

President Winchester's address, which appeared in the September number of the JOURNAL, and which has been commented upon editorially by the JOURNAL, contains much food for reflection, and should be given great consideration in the future work of the organization. His review of the progress of the profession was interesting, entertaining, and instructive. His reference to those whom the Association had lost by death during the preceding year was very touching and a fitting expression of the work done by those deceased members.

It was the first meeting at which the Hawaiian Islands were represented at the American Veterinary Medical Association, and the presentation by Dr. W. T. Monsarrat of a beautiful gavel made of native woods and embellished with horn and silver was gratefully received, and as much appreciated by the members as by the President who accepted it.

The attendance list, which was published in a prior number of the JOURNAL, was the largest at any gathering of the profession in this country, and probably in the world.

The newly-elected members show that the Association is drawing its membership from a wider range of territory than ever before, which should add materially to the strength of the organization from a national point of view. All of those recommended by the Executive Committee were elected to membership.

Among other matters brought before the Executive Committee were the charges against Dr. C. E. Cotton for unprofessional conduct. The Executive Committee, after a thorough examination of the charges and many witnesses, decided that the charges were not well founded, and exonerated Dr. Cotton from the same.

The action of the Association is to be much commended in sustaining the position that had been taken at Atlantic City relative to the expulsion of Dr. Claude D. Morris, and the attempt on the part of those who were willing to defend such action to declare the decision of the Association an illegal one was a very poor defence, in view of the Association's freedom from any legal entangling alliances, and it is to be hoped that the last has been heard of this matter in the National Association.

The committee reports were more complete than in preceding years, one of the best being by Dr. E. B. Ackerman, Chairman of the Committee on Intelligence and Education. This report will be reproduced in a later issue of the JOURNAL. Dr. E. M. Ranck, Chairman of the Committee on Diseases, made an extended report, taking up the subject of anthrax, as suggested at the meeting of 1901. No formal report was made by the Committee on Army Legislation, but Chairman Pearson stated that, in view of the attitude of the present Secretary of War, he deemed it inadvisable to make any special effort at present. No report was received from the Committee on Pharmacopœia, though promises were made that before the next convention its work would be well defined and in the hands of the various members of the committee.

Secretary Stewart, in closing the last year of his official work as Secretary. referred to the great increase in the work of the office, and expressed the desire that this should be considered his last year of service. His well rounded-out career as Secretary was followed by his election to the Presidency, an honor most generously accorded him by the Association. His successor, Dr. John J. Repp, of Iowa, will, no doubt, prove a worthy follower in this important official place, and the members may be congratulated that each strong Secretary has been followed by others developing greater zeal and efficiency in the work.

The expenses of the year were reported upon by Treasurer Lowe, showing total receipts of $2119, and expenses aggregating $1542.17. The Secretary reported a balance on hand of $576.83, and cash in the hands of the Secretary $636.02, making a total of $1212.85, with outstanding bills to the amount of $600.

State Secretary reports were received from the following: Drs. J. C. Norton, Arizona; J. I. Gibson, Iowa; J. S. Butler, Minnesota; C. J. Marshall, Pennsylvania; T. E. Robinson, Rhode Island; and G. R. White, Tennessee. These reports were read by the above secretaries, who were in attendance. Others received and read by title were Drs. J. G. Hill, for Florida; Benj. D. Pierce, for Massachusetts; T. E. Smith, for New Jersey; F. E. Anderson, for Ohio; Benj. McInnes, for South Carolina; S. B. Nelson, for Washington, and L. N. Reefer, for West Virginia. Many of these reports contained valuable suggestions, and furnished much information that should be utilized to a greater extent by the National Association in its work. These reports should also be from a greater number of States, and we hope the incoming officers will be able to secure for the meeting in 1903 a report from every State in the Union and all the provinces represented in the Association.

The Vice-Presidents selected for the ensuing year were Drs. J. G. Rutherford, of Ottawa; W. H. Dalrymple, of Baton Rouge; E. M. Ranck, of Glenolden, Pa.; M. H. Reynolds, of St. Anthony Park, and M. E. Knowles, of Helena, Mont., giving a fair distribution of these officers over the country, and the largest number of votes for any candidate being for Dr. Rutherford (seventy-eight votes), a fitting expression of the complete affiliation of the members within the United States with those of Canada.

There were three candidates for the office of Secretary, Drs. John J. Repp, Ames, Iowa; Tait Butler, of Raleigh, N. C., and W. J. Martin, of Kankakee, Ill., resulting in the election of Dr. John J. Repp.

The office of Treasurer was again bestowed upon the present incumbent.

All other nominations for this office, seemingly, were out of order. Dr. Lowe received his election by acclamation.

A large number of the papers that were on the programme were only read by title. The paper of Dr. W. C. Rayen on "Texas Fever and Its Relations to the Live-stock Interests of Tennessee," which appears in this number of the JOURNAL, was thoroughly discussed by Drs. Salmon, Tait Butler, G. R. White, and Dalrymple.

Dr. S. D. Brimhall's paper on "Hemorrhagic Septicæmia in Cattle" was a very complete one, covering the subject in all its aspects.

The practical paper of Dr. A. H. Baker, on "The Pathogenesis of Equine Pneumonic Emphysema," was the presentation of an every-day subject of much practical importacce.

The presentation of the "Results of Strict Sanitary Regulations in Arizona," by State Veterinarian Dr. J. C. Norton, which appears in this number of the JOURNAL, contains many suggestions, and forcibly demonstrates how much the combined work of the Association depends upon the work of its individual members.

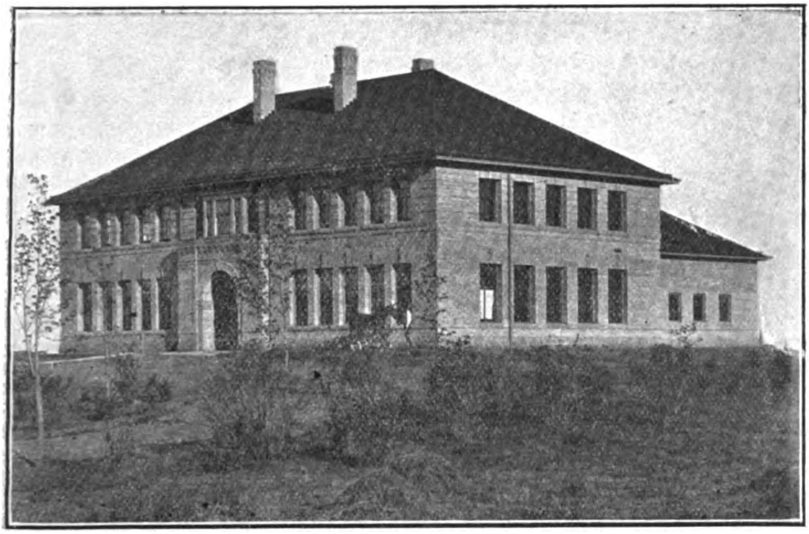
Dr. N. S. Mayo, of Manhattan, Kansas, in presenting the subject of "Poisonous Stock Foods," brought forth a subject that resulted in the expression of widely varying opinions as to where the poison line might be defined in connection with many plants and foods. Drs. A. T. Peters, Tait Butler, and W. H. Dalrymple were active in the discussion of this paper.

The other papers presented that attracted considerable attention were those on "Malarial Fever in the Horse," by Dr. F. Torrance, of Winnipeg, Man.; "Differential Diagnosis between Farcy, Furunculus, and Bursatee," by Dr. C. C. Lyford; "Barrenness in Bovines," by Dr. Charles Schmitt, of Dodgeville, Wis.; "Equisetum Arvense," by Dr. F. A. Rich, of Burlington, Vt.; "The Legitimate Field of the A. V. M. A.," by Dr. Roscoe R. Bell, of New York, and "The Life and Character of Dr. R. S. Huidekoper," by Dr. W. Horace Hoskins, completed the papers that were read before the convention.

The cut accompanying this report illustrates the building in which the surgical clinics were held. The building is a new one erected in connection with the Veterinary Department of the State College at St. Anthony Park. It was planned and built under the direction of Dr. M. H. Reynolds, and is most admirably adapted to the clinical work in connection with this institution. Its amphitheatre afforded the best facilities the Association has ever had for holding the surgical clinics.

The surgical operations performed were as follows: cryptorchid castration, Drs. Farmer and McKenzie; radical operation for cribbing, Drs. McNeall and Ward; repulsion of two adjacent molars and filling cavity with gutta-percha, Drs. Moore and Brenton; removal of osteochondrom of a larynx and operation for roaring, Drs. Merillat and Peters; correcting deformity of molars, Drs. Lyman and Foster; radical operation for enlarged bursæ, two cases fetlock, capped hocks, Drs. Lyford and Brimhall; radical operation by owner, with recovery and good results; large thorough-pin;

enlarged bursa of lateral extensor; cases illustrating Dr. Lyford's paper on farcy, furunculus, and bursatee; case of furunculus; two cases of farcy; two cases of bursatee.



NEW YORK STATE VETERINARY MEDICAL SOCIETY.

The twelfth annual meeting was called to order in the large assembly hall of the Wilson Building, Pierrepont and Fulton Streets, Brooklyn, on Tuesday, September 9th, at 10 A.M., by the President, Professor James Law, with a very favorable attendance considering the unusually stormy weather.

On calling the meeting to order President Law introduced Hon. Richard Young, Park Commissioner of the Boroughs of Kings and Queens, who welcomed the Association to the city in the following well-chosen words:

ADDRESS OF WELCOME BY HON. MR. YOUNG, PARK COMMISSIONER OF BROOKLYN, N. Y.

MR. CHAIRMAN, LADIES, AND GENTLEMEN OF THE ANCIENT AND HONORABLE PROFESSION—

One would not suppose that your profession was ancient and honorable, looking over the gathering here this morning; it is very remarkable that there is hardly a gray head except my own. I suppose that is because I am not of the profession.

My duty, my pleasant duty, is to welcome you to the city of Brooklyn. We call it the borough of Brooklyn, but I am one of those who still fondly call it the city of Brooklyn, and I am always reluctant to speak of it as the borough of Brooklyn, because it seems to belittle the great city in which you assemble; the fourth city in the Union in population, a city admirable in many things, the city of homes. Perhaps no city in this country could be so properly styled the city of homes as Brooklyn. Here are found the men who move the forces of the greater city across the river; here are the bankers, and merchants, and manufacturers, and those who have made America what it is—many of them here in the old City of Brooklyn. They go across the river to spend their energy and reap the reward. For many years it was the custom of the great merchants and the great bankers to live in Brooklyn, but there came a time when it became fashionable for many of those who had gained great wealth to go over to Manhattan, the other city, where they were convenient to many attractions, the theatre, the opera, the literary field; but there are those who are still so fond of Brooklyn that they cannot and will not leave it. Hence, we have the fourth city in the Union.

I never knew what Brooklyn was until I took charge of the Department of Parks. I found that I could drive thirty miles in one direction without running over the bank, and I could drive fifteen miles in the other direction. We might call this a city built around the parks from my standpoint, the parks being the principal feature in my mind. In this city we have fifty-seven parks and squares and fifty miles of boulevard; and you who are interested in horseflesh can find no more beautiful drives in this country—indeed in any other country—than you will find in the city of Brooklyn. We have a continuous boulevard from Prospect Park to the ocean shore, and one of the finest that exists in the country running directly through Prospect Park, which, indeed, is the finest park in the world, and that I say without boasting but from personal observation. There are no such parks in the world, nor have there been since the world was made, as were laid out by the wise men thirty or forty years ago, who intelligently took up that beautiful site and constructed thereon Prospect Park; and those who are here to-day, after the arduous work is done, should find some way—Dr. Berns can perhaps point a way—of visiting that park and driving down the boulevard to the ocean.

But, gentlemen, it may seem to you singular that the Park Commissioner should welcome you here. Why not the Borough President or the Mayor? The Borough President and the Mayor are away, that is my excuse for being here, and it is a great pleasure to welcome you to our city.

There was a time when the wheel became the fad, and I thought that you might all become mechanics, that your calling had ceased to be. I thought there would be no more use for the horse. When I saw three or four thousand people go by like mad on wheels on Saturday afternoon, I said, "The horse is done for;" and when the automobile came in, many of those who were interested in business that was dependent in a measure upon the horse said, "Well, this is the end of the horse." Sometimes it is, and sometimes the end of the driver, and it needs more attention than any horse I ever met. You never saw a man lying under a horse, but you will find men under automobiles with jacks and screws and all sorts of mechanical contrivances to get the thing to go, and when it goes it goes sometimes too fast and sometimes too slow. But after looking it over and considering it very carefully and watching the driving through the park and studying the condition generally, I have concluded that the horse is going to stay. The cycle company has gone into the hands of the receiver; many of the automobile companies have gone into the hands of the receivers. Your work is beginning. You are beginning to understand conditions; we are all beginning to understand conditions. If anybody had said to me when I was a good deal younger than I am now that a veterinary surgeon was necessary to look after a horse I would have said: " Well, let the horse look after himself. He'll come round all right." But this is no longer the case. The first sign of illness prompts the sending for the doctor. And where a horse is valuable, exceedingly valuable, why not? You are reaching that point where you understand the animal, I suppose, back nearly four thousand years ago; therefore, I speak of your ancient and honorable veterinary profession. The animals were sacred. In some of the countries the animals are so sacred that they are cared for more than human beings. For instance, I was in Turkey two years ago, and in the cities there the dogs are so numerous and are so abundant that you have to pick your steps between them—and you pick your steps cautiously, not for fear of the dog but for fear of the law. You might assault a man and you might or might not be reprimanded, it would depend on the man, whether he were a Mahomedan or a Christian. If he were a Mahomedan, you would be reprimanded; if he were a Christian, you would be commended; but if you were to assault a dog, you would be surely fined. And when you realize that they think the spirit of the departed may be in that animal, you will understand it. In those streets there are thousands and thousands of dogs, and when I say you pick your steps, I mean it literally; and the most scrawny, scurvy, mean-looking curs that I ever saw on the face of the globe are there. A charitable person there is not so apt to give bread to a hungry man, but they go off to the butcher and buy and bring in large pieces of meat of various kinds and distribute it to the impecunious dogs. One of our delights was to throw food from the hotel window to see the gathering of the dogs in that particular section. And that is only a type of the regard paid to animal life. In many of those countries they have more regard for the animal than we do. In China, in Japan, throughout the whole of the Levant and Asia Minor they have the most tender regard for the animal, and a man found abusing an animal would be called to account very quickly. They will load a man in Turkey with a load unbearable—you would think no human being could stand under it—and they will load a horse tenderly. In regard for animals we have not reached them, but we are coming to it. A man overloads an animal or abuses him, and someone will say in the street—you don't know whom, a lady or gentleman—" Here, you stop that," and he knows that he must stop it; if he will not, he is punished. That spirit is growing, and the time is coming when all animals will be as tenderly cared for as they are in those countries we think so far behind us.

I look upon the future of your profession as one of great possibilities. I learn here that many of you are from Cornell. Do you know that is a long step in the right direction. When a young man will set himself apart and give two, or three, or four years to train himself in a profession, that is a long stride in the right direction. It means that you are getting down to the bottom of what you want to do. I am glad that Cornell is doing this work. I am glad that Cornell is doing new work. I am glad to know that you are training young men in forestry and agriculture. When I looked for a man to take charge of the trees of this city and the parks (because all the trees of the city and highways are now in charge of the Park Department), I found a young man just graduated from Cornell, and I set him to work, and he is doing fine work, as his study has fitted him admirably for it. I wanted another man, and there were two applicants. One was a young man from Cornell. I have a letter, received from him this morning, asking me if he can remain another year and finish his course, and then if there will be a chance for him; if not he will come at once. I shall write him to finish his course. I shall write him to remain and finish his course there; there will always be a place for the man who is at the top of his profession whatever it may be; it does not make any difference whether he is in your ranks, whether he is in the medical profession, in law, in literature, in science, or in mechanics; there is always room at the top. Now I say this from a practical business experience in New York of more than thirty-five years.

Year by year there are gathering national associations of manufacturers and all the bodies that formed organizations for the betterment of their conditions and the strengthening of those qualities that go to make up success, and your coming together as other organizations and other professions do throughout the country is doing more for your profession, and for all others, than anything you could conceive of. There was a time when a merchant did not allow his neighbor to know anything of what he was doing. Hence, a man could come to New York and buy from one firm, and another, and another, and when he failed he owed four or five thousand dollars. Now, when he comes, Smith says to his neighbor, "John Jones is in town. How is he? He has bought very largely from me." "Well, better inquire of Brown, he has bought very largely of him." What is the basis of it? We are helping each other. You come together and you discuss matters pertaining to your profession; and every man about you will go home wiser and better able to do his work. You become stronger physically and mentally, and go back stronger in the knowledge of your profession.

I trust, gentlemen, you will have an enjoyable time in this city. I know that you are not going to have much time to run about, and if you do, you will probably run to the other side of the river, you from up the State, because there is not here just as much ast here is over there; but give some attention to this great city, the city of homes, the city of churches, this city where men think and go over there to put into execution.

Mr. Chairman, I thank you for the opportunity of meeting your organizaation. Ladies and gentlemen, I thank you, for your courtesy in listening to me.

Professor Law replied to the cordial welcome to the "City of Churches" as follows:

RESPONSE BY PRESIDENT JAMES LAW.

On behalf of the New York State Veterinary Medical Society, Mr. Young, it is my pleasant duty and privilege to thank you for your kind and courteous and warm welcome to the city of homes.

True we have somewhat of an old profession, beginning back indefinitely —in one sense beginning very definitely, perhaps, about the Grecian period —but we look upon our profession as, in a sense, dating from only the beginning of the last century. It was at that time that definite systematic education was attempted and veterinary medical colleges incorporated; and as regards the modern veterinary profession, we look upon that rather as our own. This city of homes and churches, Borough of Greater New York, is, in a sense, also young. We have only to go a little further back than our modern veterinary schools of education to find these waters covered by the Indian canoe and the shores dotted with Indian wigwams, and to-day we stop here and are welcomed in a city that is perfectly overwhelming considering the date of its start. We stand in the midst of all this vast material prosperity that comes from our modern physical conditions; we stand here in the city of a million and a quarter, or, taking in New York, I am not sure how many millions, at any rate, in Greater New York we have the prospect of a city that will probably excel any other on the face of the earth, now the metropolitan city of the most progressive country on the earth. And this should be, in a sense, an inspiration to us. The beginnings were small, and necessarily grew slowly, but we, like Brooklyn, have grown fast. We have and are growing healthily. It is for us to help each other, and largely at this convention, where one and all can bring the attention and the energy and the will that will help the advance of the profession as a whole and make them more valuable to the great animal industry. In connection with the veterinary profession, if there is one thing that impressed me more than another, it is an incident in connection with the history of the profession in the United States that is closely allied with Brooklyn. In Brooklyn, away back in 1848, there landed an Englishman. It appeared that he had brought with him a cow which he soon sold. We got not only the cow, but we got lung plague of cattle; and that spread until it extended from New York south and west to all the States of the Mississippi Valley and north to Chicago, to the very borders of the greatest cattle market in the world, and finally infected the whole country. At that time it was estimated that shippers of live cattle to England were losing two millions per annum from the embargo that was placed upon our stock by the British Government. Well, the veterinary profession was called upon to attend to this matter; and, to make a long story short, within a few years the whole infection was wiped out, east and west, north and south, and to-day we stand without a single germ of that fatal lung plague to cattle which was prevalent for nearly forty years and which prevails in the old world very disastrously now. Here is a triumph of our profession that we look upon with pride. I don't wish to depreciate any field of work of the veterinarian, I would appreciate all, but when I say that a man who successfully treats an individual case of illness in one of the valuable animals does well, I say a man who will work for and find a preventive against the possibility of infection or death, does somewhat better, and the profession that can step in and absolutely extinguish the infection from the new world has done best of all.

The President's address, which appears on page 605 of the JOURNAL, was received with great interest and highest appreciation.

The attendance of members and of visitors was as follows: Drs. E. B. Ackerman, Brooklyn; E. F. Alexander, Hoosick Falls; Charles S. Atchison, Brooklyn; Samuel Atchison, Brooklyn; Roscoe R. Bell, Brooklyn; George H. Berns, Brooklyn; A. W. Baker, Brasher Falls; W. L. Baker, Buffalo; A. Barradell, Pawling; H. J. Brotheridge, Brooklyn; H. E.

Bates, South Norwalk, Conn.; C. E. Burchsted, Exeter, N. H.; F. F. Bushnell, Winsted, Conn.; E. M. Casey, Oxford; D. W. Cochrane, New York; Charles Cowie, Ogdensburgh; A. J. Dodin, Morrisania; Thomas H. Doyle, New York; William F. Doyle, Brooklyn; J. F. De Vine, Goshen; Robert W. Ellis, New York; W. E. A. English, Jersey City, N. J.; P. A. Fish, Ithaca; Otto Faust, Poughkeepsie; H. D. Gill, New York; George J. Goubeaud, Brooklyn; G. W. Gilbert, Bayport, L. I.; E. Hanshew, Brooklyn; H. D. Hanson, New York; F. R. Hanson, New York; George S. Hopkins, Ithaca; Wilson Huff, Rome; R. C. Jenks, Ossining; L. B. Judson, Winsted, Conn.; R. E. Jones, New York; E. H. Judkins, New Paltz; M. Kenny, New York; William Henry Kelly, Albany; George A. Knapp, Milbrook; H. W. Kornobis, Brooklyn; James Law, Ithaca; A. M. Leek (veterinary student), Highwood. Conn.; George W. Meyer, New York; R. W. McCully, New York; R. A. McAuslin, Brooklyn; W. T. McCoun, Oyster Bay; V. A. Moore, Ithaca; C. D. Morris, Binghamton; W. B. Moorehouse, Tarrytown; Andrew R. Morris, New York; Edward J. Nesbitt, Poughkeepsie; L. Nicholas, New York; Arthur O'Shea, New York; T. F. O'Dea, Saugerties; R. Perkins, Warsaw; Thomas M. Quinn, Astoria; A. K. Robertson, Brooklyn; J. L. Ronan, Corning; Charles Schroder, Brooklyn; C. E. Shaw, Brooklyn; H. E. Stark, New York; H. D. Stebbins, West Winfield; G. F. Stone, Binghamton; Harry Sutterby, Batavia; T. G. Sherwood, New York; A. G. Tegg, Rochester; A. J. Tuxill, Auburn; E. F. Voorhis, Owego; James W. Walker, Brooklyn; E. Waters, Brooklyn; R. E. Waters, Gravesend; W. J. Wadsworth, Cobleskill; LeRoy Webber, Rochester; R. M. Weightman, Waterville; A. G. Wicks, Schenectady; W. L. Williams, Ithaca; J. L. Wilder, Dunkirk; H. E. Wilson (veterinary student), Brooklyn.

Delegates from the Veterinary Medical Association of New Jersey: Drs. Earnest Buckley, East Orange; J. M. Everitt, Hackettstown; J. B. Hopper, Ridgewood; J. V. Laddey, Arlington; J. Payne Lowe, Passaic; William Herbert Lowe, Paterson; Werner Runge, Newark; S. S. Treadwell, Englewood.

Ladies: Mrs. E. B. Ackerman, Brooklyn; Mrs. Roscoe R. Bell, Brooklyn; Mrs. Charles Cowie, Ogdensburgh; Mrs. H. D. Hanson, New York; Mrs. James Law, Ithaca; Mrs. J. L. Wilder, Dunkirk; Mrs. W. L. Williams, Ithaca.

Other visitors: A. R. Davidson, Brooklyn; John A. Dunn, Brooklyn; T. F. Krey, New York; Hon. Richard Young, Brooklyn.

The following veterinarians, whose applications were favorably reported upon by the Executive Committee, were elected to membership: Drs. Harry W. Kornobis, Brooklyn; R. C. Jenks, Ossining; Richard M. Weightman, Waterville; Ernest F. Alexander, Hoosick Falls; Otto Faust, Poughkeepsie; H. J. Brotheridge, Brooklyn; George A. Knapp, Milbrook; Edward J. Nesbitt, Poughkeepsie; Robert J. McAuslin, Brooklyn; George W. Meyer, New York; C. R. Perkins, Warsaw; Thomas M. Quinn, Astoria; E. H. Judkins, New Paltz; Charles Schroder, Brooklyn; Andrew R. Morris, New York; James W. Walker, Brooklyn; D. W. Cochrane, New York; William J. McKinney, Brooklyn; Le Roy Webber, Rochester; Herbert Sheldon Sackett, Brooklyn; Frank Hunt, Jamestown; C. E. Shaw, Brooklyn; A. G. Tegg, Rochester; R. E. Waters, Gravesend.

The reports of the several committees were then received. Outside of the Committee of Arrangements little active work had been done.

The Executive Committee reported upon the charges against Secretary Claude D. Morris as follows:

1. That Dr. Morris was indiscreet in using this Society's paper in writing a personal letter to the Secretary of War.

2. That Dr. Morris was indiscreet in stating in said letter that "the profession at large is not at heart for the enactment of this measure."

This committee feels that while Dr. Morris failed to exercise due discretion, they do not think that his purposes were such as to warrant the imposition of any penalty.

After the report was received a motion was offered by Dr. Bell that the defendant be tried in open session, which was carried. The defendant asked that he be tried in executive session. All except members were asked to withdraw. After due consideration the report of the Executive Committee was adopted.

The following papers were then read and discussed: Dr. Robert W. Ellis, "Veterinary Dentistry;"[1] "The Etiology of Shoe-boil,"[1] by Dr. George J. Goubeaud; "Retained Placenta," by Dr. W. L. Williams, page 620; "Syrup as a Food for Horses,"[1] by Dr. George H. Berns, of Brooklyn. "Mallein as a Diagnostic Agent" was presented by Dr. H. D. Gill.

Other papers were submitted by title as follows: "Interstitial Hepatitis of Swine," by Dr. V. A. Moore; "Veterinary Dentistry," by Dr. Childs; "Laryngeal Paralysis or So-called Cerebro-spinal Meningitis," by Dr. Gill, and "The Diagnosis of Anthrax," by Dr. Moore, in order that the subject of the enforcement of our veterinary laws introduced by Dr. Kelly might be considered.

After a thorough discussion of the need of a more rigid enforcement of the laws regulating the practice of veterinary medicine in New York State, the following resolutions were adopted:

WHEREAS, The Pennsylvania State Veterinary Medical Society has seen fit to criticise the action of this Society as to its method in dealing with one of its members; and

WHEREAS, This Society feels that it is perfectly capable of administering its own By-laws in its own way, without the advice, sanction, or interference of those from without its membership; therefore, be it

Resolved, That this Society regards as indiscreet, discourteous, and gratuitous the resolutions passed at the last annual meeting of the Pennsylvania State Veterinary Medical Association.

Resolved, That the New York State Veterinary Medical Society recognizes in the death of Rudolf Virchow, pathologist, scientist, and statesman, an irreparable loss to medical science and humanity—a man of universal genius and a benefactor of mankind, who, starting early in life in advance of his line, maintained that standard throughout his long career.

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[1] This will appear in a later number of the JOURNAL.

In recognition of these qualities we manifest the same by silent vote in rising.

PROPOSED AMENDMENTS TO THE CONSTITUTION.

We the undersigned members of the New York State Veterinary Medical Society offer the following amendments to Article V. of our Constitution:

"To strike out the word 'fifteen' and substitute 'twenty-five' in the fourth line."

"To strike out the word 'two' and substitute 'two or three' in the sixth line."

We also beg to offer the addition of a new article to the Constitution, to be known as Article No. VII., to read as follows:

"That a standing committee of three members be appointed as a Committee on Resolutions."

GEORGE H. BERNS,
W. L. BAKER.

The next meeting, by vote, was decided in favor of Ithaca, N. Y.

The surgical clinic, which was held in the hospital of Dr. George H. Berns, 74 Adams Street, included the presentation of the following cases:

1. Practical demonstration of the use of the ophthalmoscope for the diagnosis of obscure lesions of the eye. By Dr. George G. Van Mater, of Brooklyn.
2. Enormous enlargement and induration of both parotid glands in a gray horse (probably melanosis). By Dr. George H. Berns, of Brooklyn.
3. Lacerated wound of the inferior abdominal region, with protrusion of the intestines and discharge of alimentary matter through wound. By Dr. George H. Berns, of Brooklyn.
4. Dropping of stifle, following azoturia, three months' standing. By Dr. George H. Berns, of Brooklyn.
5. Gelatinous degeneration of the pastern, following plantar neurotomy. By Dr. George H. Berns, of Brooklyn.
6. Large cystic tumors of the poll. By Dr. George H. Berns, of Brooklyn.
7. Periostitis of pedal bones, both front feet. By Dr. George H. Berns, of Brooklyn.
8. Peculiar action of the stifle and relaxation of the tendo Achilles. By Dr. William J. McKinney, of Brooklyn.
9. Aggravated stringhalt of both hind legs. By Dr. Roscoe R. Bell, of Brooklyn.
10. Suspected case of farcy. By Dr. George H. Berns, of Brooklyn.
11. A pair of truck horses doing daily work fed on molasses food for eighteen months (property of Arbuckle Bros.).
12. Aggravated case of stringhalt. By Dr. J. L. Robertson, New York.

The following operations were performed:

1. Tenotomy of deep flexors, one front and both hind legs. By Dr. G. A. Stone, Binghamton.

2. Ovariotomy of mare through vagina (with privilege to all of passing hand through wound and feeling the parts). By Dr. W. L. Williams, of Ithaca.

3. Extirpation of membrana nictitans. By Dr. George H. Berns, of Brooklyn.

4. Castration of stallion, standing (time, sixty seconds). By Dr. R. E. Waters, of Gravesend.

5. Tenotomy, deep flexors both hind legs, donkey. By Dr. George H. Berns, of Brooklyn.

6. Tenotomy of lateral extensor of the phalanges (stringhalt operation). By Dr. C. E. Shaw, of Brooklyn.

7. Extirpation of lateral cartilage for the radical cure of quittor. By Dr. W. F. Doyle, of Brooklyn.

8. Demonstration of the use of a new mechanical tooth float. By Dr. Robert W. Ellis, of New York.

9. Demonstration of the use of stocks and operating-tables. By Drs. Joseph R. Hodgson, of Brooklyn, and W. J. McGee, of New York.

After the clinic was held a special trolley trip was made to Coney Island, which ended a very successful and enjoyable meeting.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

The State Society of Veterinary Graduates met at the Kirby House, Milwaukee, September 11, 1902, at 7.30 P. M. The meeting was called to order by the President, and the following members answered to roll-call: S. Beattie, H. P. Clute, C. M. Crane, C. E. Evans, H. F. Eckert, R. S. Heer, J. T. Hernsheim, E. L. Morgonworth, J. T. Roub, and S. S. Snyder. Visitors present: Drs. W. T. Schwiesum and T. A. Schneekloth. The minutes of the last meeting were read and approved.

The President re-appointed Dr. H. P. Clute on Committee of Legislation, as his term had expired.

The Revisionary Committee came under discussion and was dismissed by the Chair.

Dr. Clute, on behalf of Mrs. Stater and Ormond, extended thanks to the Society for their kind remembrance of the late Dr. C. H. Ormond.

Dr. Eckert reported some very interesting experiences with rabies, in which there were six persons infected, all taking the Pasteur treatment successfully.

Applicants for membership were taken, and the following gentlemen were received: Dr. W. T. Schwiesum, Ripon, Wis., and Dr. T. A. Schneekloth, Lodi, Wis. The Censors reported favorably, and the gentlemen were unanimously elected.

On motion, the Secretary was instructed to call a meeting of the Legislative Committee at Madison in October to frame a bill for the next Legislature, the railway expenses of this committee to be paid by the Society.

On motion, the Society adjourned to meet in Madison, subject to the call of the President and Secretary.

S. Beattie,
Secretary.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION

THE regular monthly meeting of the Association was held at Dr. William Herbert Lowe's office, corner of Paterson and Van Houten Streets, Paterson, N. J., on Tuesday evening, September 16, 1902, at 8 o'clock, with President Lowe in the chair.

On roll call the following members answered to their names: Drs. Wm. J. Reagan, John H. De Graw, William C. Ferguson, T. J. Cooper, Alexander Machan, William H. H. Doty, W. H. Lowe, Jr., M. A. Pierce, and William Herbert Lowe, of Paterson; Dr. Anthony P. Lubach, of Passaic.

The minutes of the last meeting were read by the Secretary, and on motion of Dr. Cooper were duly approved.

Upon request of members, President Lowe, as delegate to the American Veterinary Medical Association, gave at some length a report of the great veterinary convention held at Minneapolis, Minn., September 2, 3, 4, and 5, 1902.

The President also gave a report of the meeting of the New York State Veterinary Medical Society, held in Brooklyn, N. Y., September 9, 10, 1902.

Dr. Ferguson, *Chairman*, Drs. Doty and Reagan Committee on Constitution, By-Laws, and Code of Ethics, presented a report that was concise and comprehensive. Upon motion of Dr. Pierce the report was received and its recommendations taken up section by section. With slight amendments the Constitution, By-laws, and Code of Ethics were adopted as recommended by the Committee. Upon motion of Dr. Cooper it was ordered that the Constitution, By-laws, and Code of Ethics be printed.

Upon motion of Dr. Lowe, Jr., the bill of the Guardian Printing and Publishing Company for stationery and printing, amounting to $9.75, was ordered paid.

Several matters of local interest to the profession were discussed, and the meeting adjourned at 11 P.M.

A. MACHAN,
Secretary.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

THE semi-annual meeting of the Association was held at Reading on September 16, 1902.

The Entertainment Committee treated the members to a pleasant drive over the Neversink Mountain before the opening of the meeting. This is one of the pleasantest drives in the State, and was thoroughly enjoyed by the thirty members who were in attendance.

The meeting was called to order in the Board of Trade Room, No. 25 North Sixth Street, at 12.30, by President Rhoads.

The reading of the minutes of the annual meeting was suspended.

The President delivered his semi-annual address, which was both interesting and instructive.

A recess of fifteen minutes was taken for the collection of dues.

Dr. Pearson, as the Chairman of the Board of Trustees, was present, and said that the committee had no report to make at that time.

Recording Secretary E M. Ranck read the reports for the County Secretaries. These reports are filed with the Secretary.

Correspondence was read from Drs. Butterfield, Ridge, St. Clair, Schneider, Waugh, Bethune, and Jones. Their letters showed much interest on the subject of good roads, and were thoroughly discussed by the members present. It was the sense of the meeting that our Association and veterinarians throughout the State should use their influence to obtain the assistance of the State in building better roads. The Road Drivers' Association of Pennsylvania is already doing good work in this line, and we should assist them in every way possible.

Under reports of delegates, Dr. Hurley, of Dover, made a report for New Jersey, and stated that the profession in his State was in a prosperous condition. He also spoke of the improvement in their county roads since the State had become interested in the matter.

Dr. Pearson made a report for the Keystone Veterinary Medical Society, of Philadelphia. The work done by this Society in reference to the milk-supply for hospitals and public institutions revealed the fact that the conditions for supplying good milk were bad, and that no precautions were being taken to improve this state of affairs. He said that his Society was endeavoring to interest the managers of these institutions in the subject of requiring some system of milk-inspection.

Dr. Noack, of Reading, reported for the Schuylkill Valley Society. This Association is in a prosperous condition, but has had some trouble in dealing with illegal practitioners in this section of the State. Dr. Noack is very much in favor of a Re-registration Act whereby the obsolete and chaotic registration list of the present time can be dispensed with. This seems to be the only way to free the list of the names of men who have ceased to be identified with our profession. He reported that the Association was meeting with some success in the subject of milk-inspection.

Dr. John E. Spindler, of Pittsburg, sent a written report for the Committee on Sanitary Science and Police. His report was read and filed with the Secretary. Dr. M. J. Christman, of Sugar Grove, also made a report as a member of this committee.

A report from the Committee on Legislation was next called for. Dr. George Jobson, of Franklin, made a verbal report. He spoke of several cases where poor people had been bitten by rabid dogs in his section of the State. The Pasteur treatment is the only recognized treatment for this trouble. This treatment costs $150, and poor people cannot afford to take it. He thought in cases of this kind that the State should pay for the treatment. At present, if stock are bitten by rabid dogs and contract hydrophobia the State will reimburse the owner for his losses out of the dog tax money. He thought the State should provide some such plan to assist poor people who have been bitten.

Dr. Jobson also spoke of the necessity of a re-registration for veterinarians, and thought that this matter should be put in the hands of the Board of Veterinary Medical Examiners, and not left with the prothonotaries of the different counties, as it is at present.

Dr. Bowers spoke of the necessity of working up interest on the subject of good roads; that the roads in our State for a portion of the year were nearly impassable, and were a disgrace to the State.

The meeting was adjourned for lunch at 1.30 P.M. It was called to order again at 3 P.M. by President Rhoads.

A report from the Committee on Army Legislation was called for. Dr. W. Horace Hoskins, as Chairman of this committee, spoke of the great loss sustained in the death of Dr. Huidekoper. Very little has been done by the committee since his death. He also spoke of the treachery of Dr. Claude D. Morris. The victory he obtained in defeating the Army bill is enjoyed only by himself, while 8000 other veterinarians in America are disgusted with the course taken by him, and consider him nothing but a traitor. Dr. Hoskins thought that the efforts made by our profession for recognition in the army has done a great deal of good. Veterinarians in the army have noticed a vast improvement. They are consulted more and have a much better social standing. These things will assist a great deal in getting the required recognition in time.

Dr. Pearson made a few remarks as a member of this committee, and urged the necessity of agitating the subject of army recognition.

The Committee on Milk Inspection, of which Dr. Seidel, of Bryn Mawr, was the only member present, made no report.

No report was made either by the Committee on Intelligence and Education or the Committee on Animal Husbandry.

President Rhoads appointed as temporary members for the Board of Trustees Dr. James B. Rayner and Dr. A. W. Weir, who were to serve in the absence of Dr. Thomas B. Rayner and Dr. N. Rectenwald.

Under the subject of new business President Rhoads described in detail the efforts being made by the Road Drivers' Association of Pennsylvania in obtaining necessary legislation and State assistance in making good roads. The circular letters sent to veterinarians in the State on this subject by President Rhoads had been recognized by many who were enthusiastic in this matter and willing to assist in every possible way. The President said one good way to interest people in the subject was to organize Road Drivers' Associations wherever possible. He suggested that our County Secretaries should take up this question and try to work up interest and report to our annual meeting the success or failures which have met their efforts. The subject was well discussed by several members. Dr. E. M. Ranck was in favor of framing suitable resolutions on this subject, but Dr. Hoskins thought best to postpone further efforts in this line until after the evening session, as he understood an evening session would be devoted to this subject.

Dr. Ranck brought up the subject of the advisability of veterinarians keeping a black-list. In some ways he thought such a list might be useful to our Association. Dr. Noack thought such a list would be worthless, because a person who is bad pay with one veterinarian may be and often is very good pay for some other practitioner.

Dr. Hoskins was in favor of discussing this subject thoroughly, but thought action in the matter should be taken only after due consideration and with much precaution, for the reason that our Association is an incorporated body and is liable to prosecution. Only about 12 per cent. of the veterinarians in the State are members of the Association. A black-list could do very little good, and might do a great deal of damage.

Dr. Jobson thought that this subject would be putting too much work on the officers of our Association. He moved that the subject be laid on the table. The motion was seconded and carried unanimously.

Under the subject of new business Dr. Pearson brought up the question of re-registration, and discussed fully the necessity for such a measure. Under the old law about 1700 men registered as veterinarians. Many of these men were policemen, stablemen, etc., who had no right to practise. Of this number only about one-third are regular practising veterinarians.

The Pharmacy Board requires a re-registration every two years. He thought that if veterinarians had similar requirements we could soon get a clean list, and that our present law is now so well founded that it would be comparatively easy to get the necessary amendment passed.

Dr. Sallade urged the necessity of making some definite move in reference to this subject at the meeting. He said the agitation of this subject was started by the Board of Veterinary Medical Examiners. The only assistance this board has ever received was from the State Society. The board is handicapped at present by having nothing but the old obsolete list, which was prepared in many cases by thoughtless or dishonest prothonotaries. The board is also handicapped in not having the necessary funds with which to carry on its work. The money obtained by a re-registration would put the board in good financial standing. They would then have money provided to carry on investigations and prosecutions, if necessary, of illegal practitioners. With the revised list and the required amount of money the work would be comparatively easy.

Dr. Hoskins spoke of the difficulty recently encountered in prosecuting a man by the name of Brensinger, in York County. He was illegally registered several years ago, but in order to prove this it would take a long legal contest and require considerable money to carry on such a suit. In Lancaster County sixty-eight men were registered, while there were only sixteen qualified men in the county.

President Rhoads thought best, in order to economize time, to refer this matter to a Resolution Committee.

The Secretary received a letter from Mrs. Davis, widow of the late Dr. Davis, soliciting assistance from the Association in paying off the mortgage on her house and lot. Dr. Pearson moved that the Secretary be instructed to receive and transmit to her such sums as the members might wish to contribute.

Dr. Pearson suggested that the Committee on Resolutions meet with the Board of Trustees. They adjourned to the committee-room for the transaction of such business as might be brought before them.

The next order of business was the reading of papers. In the absence of Dr. W. S. Phillips, of Reading, his paper on the subject of "Unusual Symptoms in a Three-year-old Filly" was read by the Secretary.

Dr. C. J. Marshall, of Philadelphia, read a paper entitled "A Day's Work." This brought forth an interesting discussion on the subject of the causes and treatment of laminitis. Dr. Ranck described how he had seen horses with laminitis treated at the sales stables in New Orleans. The plan there was to cast the patient and keep him off his feet as much as is possible. The horse was kept down two or three days and turned frequently. He also spoke of a custom in some places of treating this trouble by giving large doses of alum as a drench.

Dr. Hurley, of New Jersey, believed in using cold-packs or soaking the feet in cold water in the first stages, followed by hot water after the acute symptoms have disappeared. He spoke very highly of pads which put pressure on the bottom of the feet, to prevent or cure the condition of drop sole. He considered it bad treatment to cast a horse in this condition, but would allow a horse to do as he pleased about standing.

The report of the Board of Trustees was read by Dr. Pearson. The board reported favorably on the three following applications for membership: Dr. I. W. Zellers, W. G. Huyett, and U. S. G. Bieber, who were unanimously elected.

Dr. Pearson was called to explain the State live-stock sanitary laws of the different States. Hardly any two States have the same system of dealing with this subject. In some States this power is vested in the Governor, in others in different kinds of sanitary boards. He showed that where a competent veterinarian has charge of the work, or is closely identified with the work, much better results are obtained. He cited as an illustration the work done in Arizona, where a competent veterinarian has charge of the work, as against Texas, where the authority is vested in practical laymen. The climatic conditions are about the same. In Arizona, Texas fever is seldom seen. Tuberculosis and glanders are very rare, and all other contagious or infectious diseases have been reduced to the minimum; while in Texas these diseases are prevalent to an alarming extent. This condition has been recognized by other States, and rigid quarantine measures have been passed against receiving cattle from Texas. With proper veterinary inspectors and directors this condition of affairs could be wiped out, which would place Texas in the front ranks of stock raising.

Pennsylvania was the first State to have a laboratory in connection with its State Board. Other States have followed our example. Massachusetts has spent the most money of any State in the Union in trying to exterminate tuberculosis. Illinois had passed some of the most arbitrary laws on this subject. They thought best to test all the cattle in the State, and pay for them according to the progress of the disease. A cow with tuberculosis that had existed five years, so much; one two years, so much, and so on down to the starting point of the disease. This idea was originated by five laymen who are authorized to look after the contagious diseases in that State.

Under all these regulations and different systems the confidence in the work is governed principally by the accuracy of carrying out the requirements.

He compared the value of live-stock in the country with other branches of industry. The output of the gold and silver mines of the United States combined would buy but one-fourth of the milk product. The product of the poultry yards was nearly nearly four times the value of the combined output of all our gold mines. An industry of such vast proportions should be guarded with the utmost possible skill and precaution.

Dr. Hoskins read the report of the Committee on Resolutions. These were adopted *seriatim* except the last one, which was laid on the table. (Resolutions will appear in November number).

Dr. Hoskins was then called to report on the proceedings of the American Veterinary Medical Association, which met in Minneapolis in September. He said, in part, that this was one of the best meetings our National Association has ever held. Representatives were in attendance from all sections of North America and even from the Philippine Islands. The Entertainment Committee had made complete arrangements and executed its work perfectly. Every member and visitor received genuine Western hospitality. The ladies in attendance were highly pleased with the attention shown them. Among the points of interest visited by them might be mentioned a trip to the State Fair, State Farm, a ride on Lake Minnetonka, the Falls of Minnehaha, a visit to one of the largest flour mills in the world, and numerous trolley rides. Altogether this was a record breaker in every respect. He hopes that the ladies will continue to accompany their husbands to the meetings of our National Association.

He also spoke highly of the honors received by our Pennsylvania men at this meeting. The new Secretary , Dr. John J. Repp, of Ames, Iowa, was formerly a Pennsylvania man. Dr. E. M. Ranck, of Philadelphia, was chosen as one of the Vice-Presidents. It was pleasant to hear our State Live-stock Sanitary Board spoken of so highly from so many different sources. He concluded his remarks by urging the members to attend our national meeting, and spoke of the different cities that had extended invitations for the next annual meeting. Among the cities most highly spoken of by him was Ottawa, Canada. He asked for an expression of this Association as to the city most suitable for the next meeting of the American Veterinary Medical Association.

Dr. Pearson spoke of the hearty manner in which Dr. Rutherford, of Ottawa, had extended an invitation at the Minneapolis meeting to visit his city in 1903. It was the sense of the meeting that Ottawa should be chosen as the next meeting-place for the National Association. The Secretary was instructed to make this fact known to the Executive Committee of the American Veterinary Medical Association.

Dr. Pearson said that the Legislature would be in session before our annual meeting, and he moved that our Legislative Committee and the Executive Committee be given power to act in whatever way seemed advisable in reference to new legislation. The motion was adopted.

The meeting was regularly adjourned to meet in Philadelphia on the first Tuesday after the first Monday in March, 1903.

An evening session was held in the Opera House. This session was devoted to the subject of good roads. Mr. H. B. Fullerton, of New York City, gave a very interesting address on this subject, which he illustrated by stereopticon views of roads throughout the world. He understood his subject perfectly, and showed plainly the advantages to any country of having good, solid roads.

C. J. MARSHALL,
Recording Secretary.

COUNTY SECRETARIES 1902–03.

Adams, M. Moriarity, Gettysburg; Allegheny, Jas. A. Waugh, Allegheny; Beaver, Jas. B. Buckham, Beaver Falls; Berks, U. S. G. Bieber, Kutztown; Bradford, J. C. Kingsland, Canton; Bucks, H. W. Turner, Lahaska; Cambria, W. B. Prothero, Johnstown; Carbon, Geo. K. Swank, East Mauch Chunk; Center, W. W. Fry, Pine Grove Mills; Chester, Jas. B. Rayner, West Chester; Clinton, C. R. Good, Lockhaven; Crawford, W. M. Wilson, Hartstown; Cumberland, S. P. Bishop, Carlisle; Dauphin, J. H. Oyler, Harrisburg; Delaware, B. M. Underhill, Media; Erie, John Bryce, Erie; Fayette, Geo. Magee, Uniontown; Franklin, C. M. Strickler, Greencastle; Indiana, D. A. Gorman, Hortons; Jefferson, J. G. Bethune, Punxsutawney; Lackawanna, Jacob Helmer, Scranton; Lancaster, E. W. Newcomer, Mt. Joy; Lawrence, E. C. Porter, New Castle; Lebanon, M. J. Collins, Myerstown; Lehigh, M. W. Keck, Slatington; Luzerne, Edwin Hogg, Wilkesbarre; Lycoming, C. W. Holley, Muncey; McKean, C. S. McKenna, Kane; Mercer, A. W. Weir, Greenville; Montgomery, E. W. Powell, Bryn Mawr; Northampton, A. W. Radley, Bethlehem; Northumberland, Harry T. McNeal, Milton; Philadelphia, Geo. S. Fuller, Philadelphia; Schuylkill, J. W. Sallade, Schuylkill Haven; Snyder, A. R. Potteiger, Selinsgrove; Susquehanna, J. F. Butterfield, Montrose; Tioga, S. Nichols, Wellsboro; Venango; Geo. B. Jobson, Franklin; Warren, W. P. Bagnall, Warren; Washington, W. J. Waugh, Washington; York, R. T. Mumma, Hanover.

DELEGATES, 1902–03.

To Schuylkill Valley Veterinary Medical Association: J. C. Foelker, Allentown; A. W. Radley, Bethlehem; Edwin Hogg, Wilkesbarre.

To Lehigh Valley Veterinary Medical Association: J. H. Oyler, Harrisburg; M. Moriarity, Gettysburg; S. P. Bishop, Carlisle.

* * *

Lyman & Lyman, veterinarians, 332 Newbury St., Boston, Massachusetts, is the new firm just established, composed of Dr. Charles P. Lyman (late Dean of the Veterinary School of Harvard University, and of Lyman & Osgood) and his son, Dr. Richard P. Lyman, recently in practice at Hartford, Conn. A complete veterinary hospital has been splendidly fitted up, with accommodations for horses, dogs, and cats. The circular announcement of the new firm was an innovation that may not bear the best of fruit in the way of advertising.

NOTES.

SCORE CARD.

Date ....

Owner's Name ....
Owner's Address ....

Specimen's Reg. No. .... Ear Tag No. ....
Specimen's Dropped ....

General Classification.		*Score Points and Count.*	*Possible Count.*	*Cuts on Points.*
Head	4	Head small and lean	1.	
		Face dished	0.5	
		Broad between the eyes	0.4	
		Narrow between the horns	0.2	
		Horns small and well formed	0.2	
		Eyes full, prominent, and placid	0.2	
		Jaw strong	1	
		Muzzle large and broad	0.8	
		Nostrils large and open	0.2	
Neck	6	Neck thin	2	
		Neck rather long	2	
		Neck with clean-cut throat	0.5	
		Neck not heavy at the shoulders	1	
		Neck thin at withers	0 5	
Body	23	Back level to the setting on of tail	5	
		Broad across loins and straight to hips	3	
		Barrel deep through heart and flank	5	
		Body wedge-shaped and long	5	
		Body with deep, large paunch, well hooped	5	
Legs	2	Short legs well formed	2	
Tail	2	Tail well set on	0.5	
		Tail thin	0.5	
		Tail long	0.5	
		Tail with good switch	0.5	
Hips	10	Hip bones wide apart	8	
		Hip bones high and prominent	3	
		Rump long	2	
		Thighs long, flat, and well cut out	2	
Udder	27	Udder large, well formed, and not fleshy	5	
		Fore udder full in form and well rounded	5	
		Fore udder well up on belly	5	
		Rear udder full in form and well rounded	5	
		Rear udder well out behind	2	
		Rear udder well up behind	3	
		Quarters must be well formed together and not cut up between teats	2	
Teats	6	Teats rather large, but not over size or small	2	
		Teats wide apart	2	
		Teats squarely placed	2	
Milk veins	5	Milk veins large, prominent, and elastic	5	
General	15	General dairy conformation	5	
		General appearance	2	
		General apparent constitution	2	
		General apparent capacity	2	
		General condition of hide	2	
		Disposition quiet	2	
Total,	100	Possible score	100	
		Total cuts		
		Net score		

Scorer ....

—*Jersey Bulletin*, October 15, 1902.

PERSONALS.

Dr. Roscoe R. Bell, of Brooklyn, N. Y., was selected to act as official veterinarian to the Bay Shore (L. I.) Horse Show, which took place in August last.

Dr. Geo. R. White, of Nashville, Tennessee, had the misfortune to have had his baby bitten by a rabid dog on June 3, the animal dying on the 6th. The doctor and Mrs. White took their child to the Pasteur Institute, St. Louis, for the eighteenth-day treatment, and there is every reason to believe that all danger has now passed.

Dr. R. O. Hasbrouck, of Passaic, N. J., spent ten days away from his practice in September, visiting parts of his own State and Eastern Pennsylvania.

Dr. W. G. Benner, of Doylestown, Pa., has passed the Civil Service examination for meat-inspector, and will shortly enter the service of the Bureau of Animal Industry.

Dr. D. F. Luckey, State Veterinarian of Missouri, spent a couple of weeks among the Farmers' Institutes in the early part of September.

Dr. C. T. Goentner, of Bryn Mawr, Pa., has become President of the bank at that place.

Dr. A. H. Baker, of Chicago, Illinois, was taken seriously ill at the A. V. M. A. Convention in Minneapolis, and was confined to his bed for a week subsequent to his return home.

Dr. E. G. Gilbert, of Pottstown, Pa., lost by theft in September veterinary instruments to the value of fifty dollars.

Dr. Chas. E. Cotton, of Minneapolis, Minnesota, spent several days in bed subsequent to the convention of the A. V. M. A. in his city. Charley, as his friends are wont to call him, proved a royal entertainer of his many friends at the convention.

State Veterinarian Pearson, of Pennsylvania, addressed the farmers' picnic of Chester County the latter part of September.

Dr. M. H. Reynolds, of St. Anthony Park, Minnesota, was seriously indisposed subsequent to the A. V. M. A. Convention. His assiduous attention to the welfare of the visitors to the A. V. M. A. Convention we fear proved too severe a strain.

Dr. W. L. Zuill, of Philadelphia, Pa., has gone to the sunny clime of Pasadena, California, where he contemplates locating permanently and to devote his entire attention to eye practice.

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SOME EXPERIMENTS UPON THE IMMUNIZATION OF CATTLE AGAINST TUBERCULOSIS.[1]

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AND

S. H. GILLILAND, V.M.D,
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(From the Laboratory of the State Live-stock Sanitary Board of Pennsylvania).

WHEN an extensively tubercular herd is tested with tuberculin one usually finds some animals that do not react to the test and are free from disease. These uninfected animals may be young or they may be recent additions to the herd, and their freedom from disease may be due merely to the fact that they have not had time to contract it; on the other hand, they are often cows that have been members of the herd and exposed to infection for years. That the freedom of these cattle that have long resisted the disease is not due to breed or family immunity has, in numerous instances, been shown by the fact that their parents or offspring have succumbed to tuberculosis.

To what is such resistance to tuberculosis due? It is evident that it does not depend upon species, breed, or lack of exposure. It is an individual factor. An animal may possess some power within itself to resist the tubercle bacilli that it is constantly exposed to and must daily inhale and ingest.

Careful observation of these cattle and study of them in series show that the immunity they possess is not due to what is roughly termed good general health or what the stockman knows as good condition. Cattle resistant to tuberculosis may suffer with some other disease or be in a bad state of nutrition. Cattle that contract tuberculosis show, in very many instances, until the infection is well advanced, the usual signs of good health, such as soft coat, pliable skin, clear eyes, good appetite, and regular growth or increase of weight or yield of milk in proportion to the quantity and quality of food consumed. It appears, then, that there is reason to believe that some cattle have a specific resistance to tuberculosis. We know that specific resistance or immunity of the individual, occurring under natural conditions, usually depends on a previous attack of the disease against which the animal is immune, or, as in the case of Texas fever, upon the continued existence of the disease in a form so mild as not to appreciably disturb the various functions. This principle receives practical application when persons are rendered immune to smallpox or animals to anthrax, black-quarter, lung plague, rabies, or Texas fever by inoculating them with the attenuated but living virus of the respective disease, and thus causing them to develop it in a comparatively mild form, from which speedy recovery and subsequent immunity are almost certain.

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[1] Read before the Pathological Society of Philadelphia, November 13, 1902.

From the inoculation there results the automatic development of an antitoxin that counteracts the toxin of the disease, and, at the same time, prevents or retards the growth of the organism of that disease. Until comparatively recently this principle has been thought to hold only in respect to certain acute infectious diseases, but it is now known to be of much wider application. Protection upon this principle is usually known as vaccination. In some cases the germ-free toxin is used for a similar purpose.

In 1901 we conducted an experiment for the purpose of determining the influence of Koch's original tuberculin upon the resistance of cattle to tuberculosis. In this experiment were used four cows known by the numbers 26554, 26555, 26556, and 26557. Each was tested with tuberculin before it was admitted into the experiment. Two of these cows, 26554 and 26557, were given daily injections of 5 c.c. of concentrated tuberculin for ten days, from August 24 to September 2, 1901, inclusive. Each of the four cows in the experiment was fed daily 100 grammes of hacked tuberculous lung tissue from a cow, for ten days, from the 10th to the 19th of September, inclusive. The first pair of cows, 26554 and 26557, that had received preliminary injections of tuberculin were given subcutaneously 15 c.c. of concentrated tuberculin each day during the progress of the feeding upon tuberculous material.

The other two cows, 26555 and 26556, which had not received the daily preliminary injections of tuberculin, received no tuberculin during the experiment.

One of the cows (26554) that had been treated with tuberculin, and one (26555) that had not been treated with tuberculin were killed November 25, 1901. The cow (26554) that had been treated with tuberculin showed upon post-mortem examination lesions of tuberculosis in the post-pharyngeal and mesenteric lymphatic glands. The control cow (26555) showed lesions of tuberculosis in the right lung and in the bronchial and mediastinal lymphatic glands, the post-pharyngeal and intermaxillary lymphatic glands and in the mesenteric lymphatic glands. The lesions in this control cow were more widely distributed and more advanced than in the cow that had received large quantities of tuberculin.

The other two cows of the experiment were killed December 16, 1901. In the first of these (26557) which had received the injections of tuberculin, no lesions of tuberculosis were found excepting in the mesenteric lymphatic glands. A few of these glands of both the small and large intestine showed small areas of caseation. The second control cow (26556) showed lesions of tuberculosis in both lungs, the bronchial, mediastinal and post-pharyngeal glands; and the lymphatic glands of the mesentery were more extensively involved than in the preceding cow.

From this it would appear that subcutaneous injections of the toxin of the tubercle bacillus had had some influence in increasing the resistance of these two cows to feeding tuberculosis.

E. A. de Schweinitz reported in the *Medical News* for December 8, 1894, some experiments made by him upon guinea-pigs, in which these animals were inoculated with tubercle bacilli of human origin cultivated for about twenty generations upon glycerin beef broth, and were afterward inoculated with tuberculous material from a cow. The guinea-pigs so treated remained free from tuberculosis, while check animals inoculated with the same tuberculous material from the cow died of tuberculosis within seven weeks. De Schweinitz also showed that the twentieth generation of broth culture appeared to be incapable of producing tuberculosis in a cow when she was inoculated intravenously with a small quantity. De Schweinitz and Schroeder report (U. S. Dept. of Agr., *B. A. I. Bulletin*, No. 13, 1896) upon other inoculations similar in nature and confirmatory of the above results. They show, further, that the attenuated culture they were working with was not virulent for cattle when inoculated intravenously in quantities of 500 c.c. of suspension in liquid.

The immunizing effect upon cattle of the administration intravenously of tuberculous material or of living cultures has been studied by J. McFadyean and by von Behring.

McFadyean reported in the *Journal of Comparative Pathology and Therapeutics* for June, 1901, and March, 1902, upon some experiments regarding the immunization of cattle against tuberculosis. He inoculated four cattle intravenously with emulsions of tuberculous material and cultures from various sources. One of these cattle, which had responded to the tuberculin test, and was, no doubt, tubercular upon the beginning of the experiment, was given about 150 c.c. of tuberculin in divided doses before inoculation. Fifteen weeks after inoculation this animal was killed and was found to contain but one tubercle, the size of a pea and completely calcified, in a mesenteric gland. Two control cattle inoculated with an equal dose of the same material died of generalized tuberculosis. Of the other three cattle of the series one was tubercular at the beginning of the experiment. All of these were inoculated intravenously from seven to eleven times during a period of from two to three years with emulsions of tuberculous materials and with cultures from various sources. It is interesting to note that the first inoculation upon each of the cows that was free from tuberculosis at the beginning of the experiment was made with avian material which was probably of very low virulence for cattle. The cattle so inoculated died of tuberculosis after two to three years from the beginning of the experiment, and in each case the chief lesions were in the kidneys and the brain or its covering membranes. The cerebral lesion appears to have been the immediate cause of death in each instance. There can be no doubt that these animals were remarkably resistant to tuberculosis, because they lived for months or years after repeated inoculations with large quantities of material of proven virulence for cattle.

Von Behring announced December 12, 1901, that he was engaged in studying the immunization of cattle against tuberculosis, and he has since published a report (*Beiträge zur Experimentellen Therapie*, Heft 5, 1902) upon his work. He details experiments upon several cattle treated with injections of tuberculin and with cultures of varying degrees of virulence and from several sources, and also inoculated with tuberculous material or cultures of proven virulence. It may be noted that a pure culture virulent for cattle was not available for use in von Behring's work until 1901. The experiments upon seven cows specially reported were commenced between July and December, 1901. These cows have all received repeated injections of tuberculin and of tubercle virus of low and high virulence. All of the protected cows are still alive excepting one that was killed and was found to have numerous tubercular nodules in the lungs, although these were believed to be retrogressive. This general experiment cannot be looked upon as finished, and any report upon it must be regarded as incomplete until the cows die or are killed and are examined post-mortem. The cows may appear to be in good health now, but, notwithstanding, they may be extensively tubercular. However, that they are alive after receiving quantities of virulent tuberculous material that are sufficient to kill untreated cows shows that they have extraordinary resistance to tuberculosis. The method used to treat these cows was not systematic nor the one that he now recommends upon the evidence of experiments not yet published. The method now recommended by him is to inject intravenously 0.001 gramme of a scraping from a serum culture of tubercle bacilli dried in vacuum, powdered, and suspended in water. The culture used for this purpose was obtained originally from human sputum and has been grown in his laboratory since 1895. After four weeks a second injection is made containing twenty-five times the original quantity of tubercle bacilli, or 0.025 gramme. Von Behring has now underway extensive experiments planned to test the resistance of immunized calves to natural infection from association with infected animals in contaminated premises.

Since 1896 tuberculosis of cattle has been the subject of special and extensive study and experimentation in the laboratory and research station of the Pennsylvania State Live-stock Sanitary Board. During this time the virulence for cattle and other animals of tubercle culture and material from many sources have been tested by Dr. M. P. Ravenel, Dr. John J. Repp, and ourselves. The results of some of this work have been reported upon several occasions to this Society by Dr. Ravenel and to the British Congress on Tuberculosis in 1901. Some experiments looking toward the development of better methods for repressing tuberculosis in herds have been reported by Dr. Leonard Pearson.

It has been shown by numerous experiments that the sputum of persons suffering from consumption and cultures of tubercle bacilli made from such sputum are usually comparatively nonvirulent for cattle. It is important to know, further, that a given culture of sputum tubercle bacilli is incapable of producing serious disease in such quantities as it may be necessary to use in an attempt to increase an animal's resistance to tuberculosis.

The following experiment throws light upon the question as to the quantity of culture of this kind that may be administered and the effect of repeated inoculations made in four different ways. A Jersey heifer (26415) shown by tuberculin test to be free from tuberculosis was inoculated intraperitoneally September 29, 1900, with 4 c.c. of a standard suspension[1] of human sputum culture that had remained in a collodion capsule in the abdominal cavity of a bull for seven months, and was then regained in pure culture by Dr. Ravenel. The third generation on blood serum furnished the material for this inoculation. The heifer was inoculated intravenously March 15, 1901, with 13.5 c.c. of a standard suspension of tubercle bacilli, probably of human origin, that had passed through a coati (*Nasua narica*), and were recovered in pure culture by Dr. Theobald Smith in 1895. This culture had afterward remained about one year in a collodion capsule in the peritoneal cavity of a heifer, had been recovered by Dr. Ravenel, and the third generation on blood serum after recovery supplied the material for the present inoculation. A second intravenous inoculation with 10 c.c. of similar suspension was made June 1, 1901. August 23, 1901, this heifer was inoculated with 20 c.c. of a standard suspension in water of a culture (H) of tubercle bacilli from human sputum. This quantity of material was divided into four parts of 5 c.c. each, and these parts were injected beneath the skin, into the peritoneal cavity, into the jugular vein, and into the lung, respectively. These injections were repeated at intervals of from seven to ten days until January 29, 1902. The quantity of standard suspension was increased 10 c.c. with each successive inoculation, so that at the last, the eighteenth, inoculation the total quantity given was 160 c.c. The total quantity given in this series of inoculations was 1797 c.c. of standard suspension. There was a rise of temperature of from two to four degrees following each inoculation after the first one. The first inoculation caused no temperature reaction. The heifer was in strong, thrifty condition at the completion of the series of inoculations, and improved in condition throughout the following months. It was killed August 14, 1902. The condition was good, and there was an abundance of fat upon the carcass and about the intestines. The post-mortem examination revealed the lungs to be normal in color and elastic; they were free from nodules, but were attached to the chest walls along the lower borders by fibrous bands. A few flakes of fibrin were found upon the omentum, and these flakes contained a few calcareous nodules about one-twelfth of an inch in diameter. The liver was adherent to the diaphragm over an area five inches in diameter.

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[1] By a standard suspension is here meant a suspension of tubercle bacilli in water in such quantity as to give an opacity equal to that of a twenty-four-hour culture of typhoid bacilli in bouillon. 1 c.c. of such a suspension is estimated to contain the equivalent of 0.0013 gramme of tubercle bacilli after drying ten days in a desiccating chamber over calcium chloride.

A yearling grade short-horn bull (26442) after having been tested with tuberculin and proven to be free from tuberculosis, was inoculated intraperitoneally November 19, 1900, with 16 c.c. of a suspension of tubercle bacilli from a culture from human sputum that had remained in a collodion capsule in the peritoneal cavity of a bull for seven months. The third generation on blood serum after recovery furnished the material for this inoculation. March 17, 1901, this bull was inoculated intravenously with 13.5 c.c. of a standard suspension of a culture similar to that used in the inoculation of the above heifer (26415) on March 15 and June 1, 1901. This animal was subsequently inoculated in the same manner as the heifer, receiving eighteen inoculations between August 23, 1901, and January 10, 1902. He received in all 1710 c.c. of standard suspension. He reacted following the inoculations very much as the heifer, although somewhat more slowly. He remained in good condition and apparent good health until he was killed, excepting for the development of an abscess over the jugular vein, which was opened November 22d, and afterward healed nicely. January 18, 1902, this bull was inoculated intraperitoneally with 10 c.c. of a standard suspension of tubercle bacilli from a culture (H) of bovine origin. The virulence of this culture for cattle had been proven by numerous inoculations, among which the following may be mentioned: A cow (26431) weighing 950 pounds was inoculated intravenously January 8, 1901, with 5 c.c. of a standard suspension from a culture of bovine tubercle bacilli H. The cow lost weight rapidly to 750 pounds, and died March 4, 1901. Post-mortem examination revealed most extensive miliary tuberculosis of the lungs. Another cow (26433), weighing 698 pounds, was similarly inoculated at the same time, and died January 26th of miliary tuberculosis of the lungs. This cow received two injections of tuberculin of 0.4 c.c. each on January 16th and 22d. Both of these cows had been shown to be free from tuberculosis by tuberculin test before they were inoculated. A red heifer (45072), about eight months old, was tested and did not react. It was inoculated intraperitoneally April 30, 1902, with 5 c.c. of standard suspension of bovine culture H. It died June 7, 1902, and was found to contain extensive lesions of tuberculosis upon the peritoneum and abdominal organs, and the lungs, also, were crowded with small tubercles. The bull (26442) was killed August 13, 1902. The general condition was good, and there was much fat upon the carcass and about the internal organs. The pleura lining the lower half of the chest was covered by a sheet of partly organized fibrin from one-eighth to one-third of an inch thick. The lungs themselves contained a few nodules about one-half inch in diameter surrounded by thick walls and containing caseous pus in which there were many tubercle bacilli. These nodules did not seem to be progressive, and appeared to be abscesses indicating the sites of previous inoculations. The peritoneum covering the abdominal walls, the stomach, intestines, spleen, and liver was coated with a layer of partly organized fibrin, as in the chest. The lymphatic glands about the rectum were enlarged and caseous. The surface of the omentum was rough from the presence of a thin layer of partly organized fibrin. The omentum was thickened in places, but there were no distinct nodules. From the fact that the fibrinous coating of the serous membranes was as pronounced in the thoracic as in the abdominal cavity it is probable that the virulent culture of tubercle bacilli injected into the abdomen has little to do with the production of this deposit, which may readily have resulted from the discharge of a pulmonary abscess into the pleural cavity or the discharge into the peritoneal cavity of the purulent contents of one of the softened lymphatic glands in the pelvis.

It is evident that the sputum tubercle bacilli used for the inoculation of these two animals (26415 and 26442), even in the exceedingly large quantities in which they were employed, were incapable of causing general tubercular infection. Even the intraperitoneal inoculation of the bull with a quantity of virulent culture nearly twice as great as was necessary when similarly administered to kill an unprotected heifer did not, so long as he was permitted to live, appreciably disturb his general health. The human sputum culture M used for these inoculations was obtained by Dr. Ravenel from the sputum of a consumptive woman in September, 1899. As a further indication of its degree of virulence, it may be noted that two guinea-pigs were inoculated, subcutaneously, December 18, 1901, each with 1 c.c. of a standard suspension of this culture.

One guinea-pig died March 8th and the other March 20th, of generalized tuberculosis. Two rabbits were also inoculated December 16, 1901, each with 2 c.c. of the same suspension. Both died suddenly in June, one on the 3d and the other on the 10th, from having been given improper food. Both were free from all evidence of tuberculosis and showed no alteration excepting diffuse redness of the intestines.

These experiments tend strongly to show that cattle may be refractory to enormous quantities of tubercle bacilli from human sputum when injected into the blood beneath the skin, into the peritoneal cavity or into the lungs; and the result upon one of the animals (the bull) indicates that after such treatment the resistance to virulent culture of bovine origin may be increased.

An experiment was inaugurated in March of this year, to again, and more definitely, test the immunizing value of repeated intravenous inoculations of cultures of sputum tubercle bacilli not virulent for cattle. For the purpose of this experiment four young cattle were used, as follows: A black and white bull, sixteen months old (46066); a red heifer, twelve months old (45068); a red heifer, fifteen months old (45067), and a red heifer, eleven months old (45071). All were tested with tuberculin and were proven to be free from tuberculosis. They were divided into two groups of two each as nearly equal as possible in respect to age, size, and general condition. The animals of one group were inoculated intravenously seven times between March 24th and June 2d, with gradually increasing quantities of from 10 c.c. to 25 c.c. of a standard suspension of a culture of sputum tubercle bacilli. In all, 125 c.c. of this suspension were administered, representing about 0.16 gramme of tubercle bacilli.

Each of the four animals in this experiment—the two that had been vaccinated (45066 and 45068) and the two kept as controls (45067 and 45071)—was inoculated July 29th by injecting into the trachea 10 c.c. of a standard suspension of bovine tubercle bacilli (culture H) known to be virulent for cattle. The intratracheal method of inoculation was used, because it furnished a means of conveying tubercle bacilli into the organs most frequently infected in nature and in a manner unattended by disturbance of function or with material traumatism. It seemed to give a mode of infection closely resembling the natural one. One of the vaccinated cattle (45068) was killed October 4th. A searching postmortem examination revealed all of the organs, including their lymphatic glands and covering membranes, to be free from all evidence of disease, with the exception of a slight fibrous thickening of the wall of the jugular vein at the point of vaccination. At the site of the intratracheal inoculation of July 29th there was no mark, and the mucous membrane lining the trachea was entirely normal.

A control heifer (45071) killed October 8th showed the following upon post-mortem examination: At the point of inoculation, upon the outside of the trachea and beneath the skin, there was a globular abscess about three-quarters of an inch in diameter, containing cheesy pus. The mucous membrane of the trachea showed a number of small, reddish elevations (tubercular) below the point of inoculation. The lungs were studded upon the surface and upon cross section with grayish nodules one-quarter to one-half an inch in diameter, the centres of which were caseous. These tubercles were evenly distributed in both lungs and roughly averaged from one to one and one-half inches apart. They could be plainly seen and felt through the transparent pleura. The apex of the right lung contained a caseous area two inches in diameter, which was made up of many adjacent small tubercles. The bronchial and mediastinal lymphatic glands were enlarged and contained cheesy areas from one-sixteenth to one-third of an inch in diameter. The post-pharyngeal lymphatic glands were enlarged to the size of an egg, hyperæmic, and on section showed numerous caseous areas.

The second vaccinated animal (45066) was killed October 16th. At the two points of insertion of the needle when the animal was inoculated, July 29th, there were two somewhat hard, globular fibrous thickenings one-quarter to three-fifths of an inch in diameter, respectively. Within the trachea, and occupying positions corresponding to these, were two very small (pin-head) grayish elevations in the mucous membrane. Upon section it was found that the upper of these small thickenings was made up of fibrous tissue, the lower (the smaller one) contained a focus of caseous material surrounded by thick, fibrous walls. The whole appearance was that of a closed process. No other lesions were found in any part of the body. All of the organs, their lymphatic glands and covering membranes, appeared to be quite normal. There was no thickening of the wall of the jugular vein at the point of vaccination.

The second control (unvaccinated) heifer (45067) was killed October 16th. The post-mortem report is as follows: Beneath the skin in the middle of the neck, at the point of inoculation, there was an abscess about two inches in diameter that contained cheesy pus. All of the inferior cervical and suprasternal lymphatic glands were enlarged to several times their normal volume and contained numerous areas of caseation. Within the trachea, from the point of inoculation down to its bifurcation and up to the glottis, the mucous membrane lining the ventral half of the tube was thickly studded with oblong, red, and evidently young and progressive tubercular growths. These formations were from one-sixth to one-half an inch long, and about two-thirds as wide; they stood above the surrounding surface from one-twelfth to one-half an inch. The post-pharyngeal lymphatic glands were enlarged to the size of a hen's egg and loaded with caseous material. The lungs contained many grayish nodules one-eighth to one-quarter of an inch in diameter. The smaller were grayish throughout, while the larger had yellow, cheesy centres. These nodules were not set so thickly as in the other control heifer (45071). They averaged from four to five inches apart, and were very evenly distributed throughout both lungs. The mediastinal and bronchial lymphatic glands were enlarged to twice their normal size and contained much caseous material. Many (about eighteen) of the lymphatic glands of the mesentery were enlarged and caseous. No alteration could be found in the mucous membrane or the walls of the intestine. The infection of the mucous membrane of the trachea above the point of inoculation appears to have been due to the carriage upward by coughing of some of the tubercle bacilli at the time of inoculation. It is well known that cattle habitually swallow their expectorations, and this may account for the infection of the post-pharyngeal and mesenteric lymphatic glands.

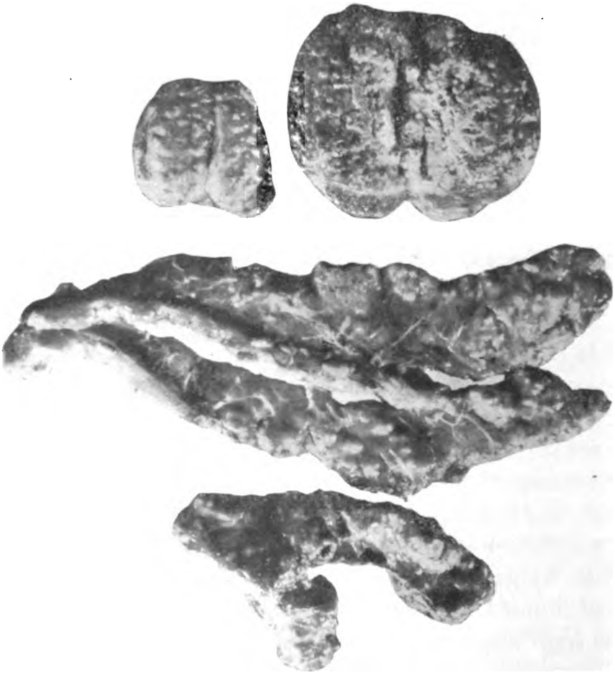
From the experiments here recorded we believe that we are justified in concluding:

1. That after repeated intravenous injections of cultures of tubercle bacilli from human sputum the resistance of young cattle to virulent tubercle bacilli of bovine origin may be increased to such an extent that they are not injured by inoculation with quantities of such cultures that are capable of causing death or extensive infection of cattle not similarly protected.

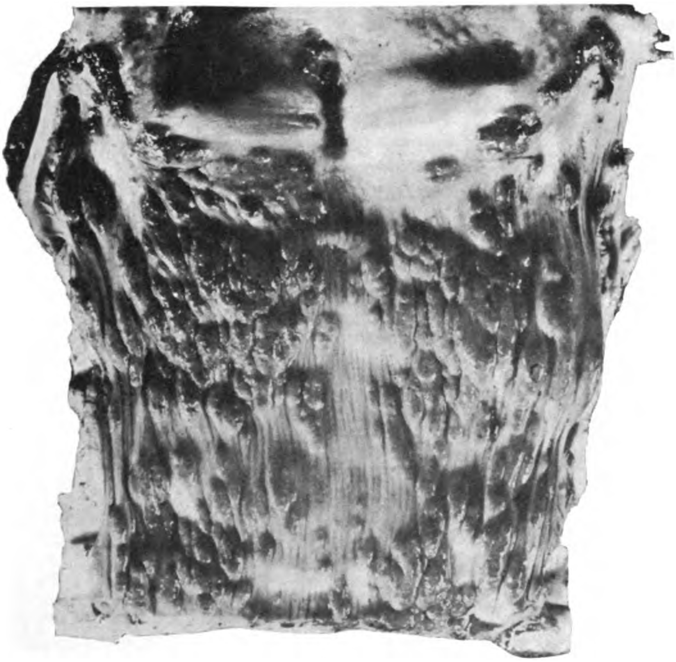
2. That by intravenous injection much larger quantities of culture of human sputum tubercle bacilli than are necessary to confer a high degree of resistance, or immunity, upon the vaccinated animal may be administered without danger to that animal.

We now have in progress uncomplete experiments upon a number of young cattle, some of which have been underway since last March, for the purpose of testing the duration of this immunity and the extent to which it is effective in protecting cattle against infection from natural sources. We have also started an experiment which we hope will throw light upon the open question as to the minimum quantities of culture of non-virulent tubercle bacilli that it may be necessary to administer in order to confer a serviceable degree of immunity, and, further, whether it may be possible to simplify the process of vaccination by successive injections of a few cultures of progressive degrees of virulence.

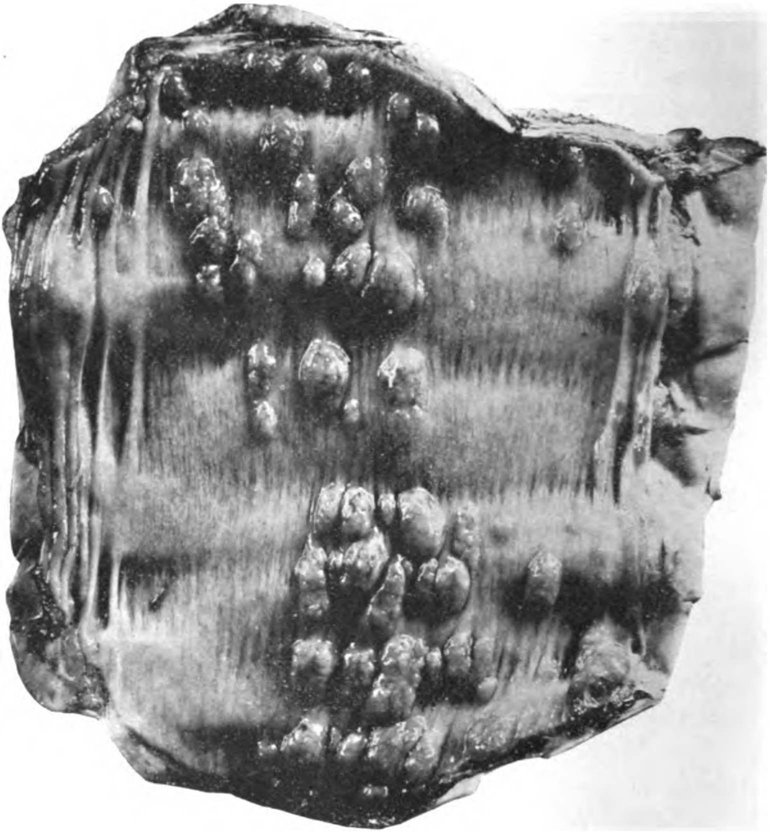
In conclusion, we wish to express our thanks to Dr. M. P. Ravenel and to Dr. H. C. Campbell; to the former for the originals of most of the culture used, and to both for general assistance during the progress of the experiments. We also wish to thank the authorities of the Veterinary Hospital and of the Pepper Clinical Laboratory of the University of Pennsylvania, who have generously furnished the State Live-stock Sanitary Board with a laboratory and with other facilities, without which its research work would have been impossible.



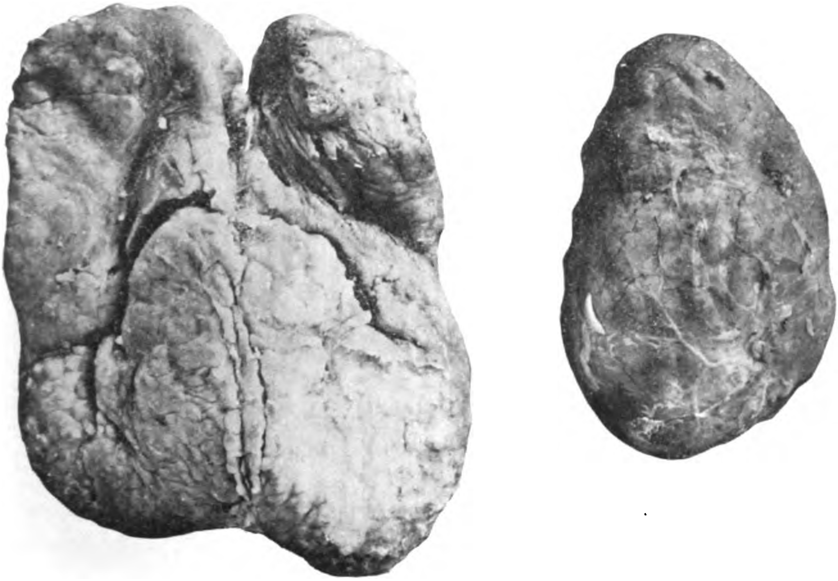
Cervical, mediastinal, and bronchial glands from control heifer No. 45067. One-half normal size. All are enlarged and caseous.



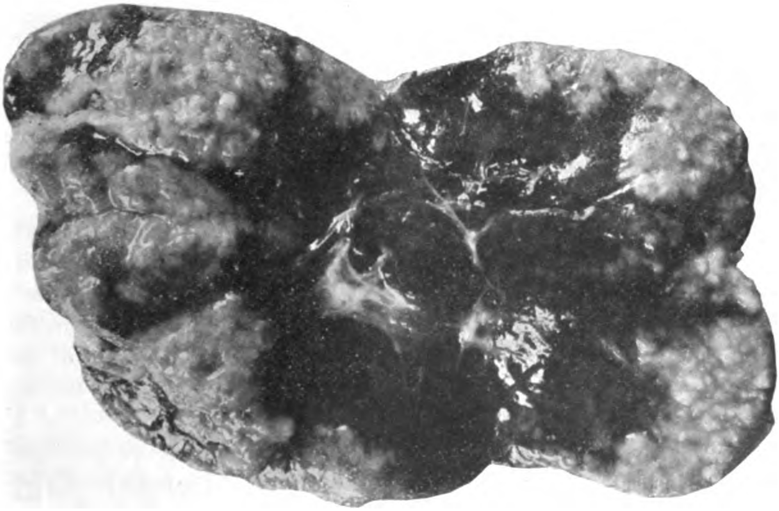
Upper portion of trachea of control heifer No. 45067. Shows tubercular growths on the mucous membrane.



Lower portion of trachea of control heifer No. 45067. Shows tubercular growths on the mucous membrane.



Post-pharyngeal lymphatic glands of control heifer No. 45067. Enlarged and caseous.



Mesenteric lymphatic gland from control heifer No. 45067. Enlarged and caseous.

Post-pharyngeal lymphatic glands of vaccinated bull No. 45066. One is bisected. Normal in size and texture.

ETIOLOGY OF SHOE BOIL.[1]

BY G. J. GOUBEAUD, D.V.S.

BROOKLYN, N. Y.

ABOUT two years ago I read an original paper before the New York County Veterinary Medical Association, treating upon etiology of shoe boils, or, as more properly termed, ulnar fibroma. It was prepared after several years of study, thought, investigation, and experiment. Not being easily discouraged by adverse criticism, I have continued investigating up to the present time.

It is with the earnest desire of, as it were, forcing the issue, that I lay this, to me, interesting subject before this association, a society composed of the foremost thinkers and advanced veterinarians of the country. The evening I read the paper before the New York County Veterinary Medical Association I did not possess as much as one friend or one who believed in my assertions.

In the discussion that followed I was plied with more questions than ten quick thinkers and rapid talkers could answer. Every one opposed me, and I left that meeting more determined than ever that I was right, because no one advanced a common-sense argument, made a reasonable assertion, or presented a rational view to upset my opinion. But since then I have received expressions of opinion which are in accordance with those which I hold.

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[1] Read before the Twelfth Annual Meeting of the New York State Veterinary Medical Association, at Brooklyn, September 9 and 10, 1902.

I lay this subject before the members of this Association to get an expression of opinion.

First, I wish to know if I am right. And if so, then I have added my mite in advancing the interests of veterinary science; and if wrong, then I have simply been mistaken. I know that it is with no little difficulty some of us cast aside fixed ideas, cherished traditions, the teachings which we received, ideas formed, and the impressions conveyed to us in our college days. It is with a certain amount of timidity that I present this paper, and I hope to have your indulgence. It is not the intention of the essayist to enter minutely into the pathology of this affection, or describe the various lesions which the injury can produce (for such it primarily is), or the complications which may arise; nor its therapy. Aside from prevention the etiology alone will be considered.

The text-books, veterinary authorities, professional and lay writers, and those with whom I have conversed, claim that the shoe or the hoof is the offending agent. The larger number claim that the shoe causes this affection.

We will first take up the shoe as the first cause. The shoe causes shoe boil, or it does not. The animal is either improperly shod, the heels of the shoe are too long, or they are purposely made long in order to correct some abnormal condition of the foot or irregularity of the animal's gait.

The animal while in the recumbent position rests the elbow upon the heels of the shoe, thus injuring the skin and structure beneath, resulting in the characteristic tumor, or it drops heavily upon the ground while assuming the recumbent position. The heels of the shoe come in violent contact with the elbow, and in this manner the tumor is developed.

Now as a rational conclusion, a result can exist not produced by a cause. How can a result take place which is produced by a cause that does not exist, and has no existence, or, in other words, how can a shoe cause shoe boil when the horse did not wear shoes at the time of the development of the tumor? I have seen colts that never had a shoe upon their feet have these tumors, and I have seen horses without shoes turned loose in a box-stall, and horses turned loose without shoes in a pasture lot, develop ulnar tumors. Others have observed the same occurrences, and still it seems to make no difference, shoe or no shoe, these animals develop the affection.

I have seen horses wearing rubber pads have a swollen condition of the elbow present itself over night. In two instances the rubber pad was employed as a preventive measure, and still there were recurrences in both cases. I have seen horses wearing the half shoe develop tumor of the elbow. Now, how is it possible for the horse to develop these tumors caused by the shoe when the horse does not and did not wear shoes at the time of the occurrence of this affection?

Some claim that the foot causes this abnormality, and I will attempt to disprove the correctness of this assertion, although it will be a much more difficult task.

We will suppose that an animal does rest the elbow upon the foot, which part of the hoof I do not think makes any difference. We will suppose that a weight, say fifty pounds, rests upon the foot, and the pressure of the same amount is placed upon the region of the elbow. Does it seem reasonable to suppose that an animal with a healthy brain will lie in that position? Does it seem reasonable to think that an animal will lie half an hour, or an hour, or perhaps longer, without causing extreme pain and discomfort? Does it seem reasonable to think that an animal will so lie upon the skin of the elbow and the structures beneath, which are very sensitive, and that it will injure them so severely without changing its position, and that the necessarily painful and uncomfortable position will not be changed before any damage has been done? As to the foot, will an animal stand that amount of pressure upon the hoof and its sensitive structure? I say, no.

Compress a horse's foot to about a twenty-five pound pressure, and I can assure you that he will rebel against any such treatment the moment the test is applied, and it will not be necessary to wait one-half hour for the result; and again, the usual result of pressure applied to sensitive parts is lowering of the vitality, destruction of the parts, pus formation, and sloughs. I ask how often does this happen? I can answer, very seldom.

For the purpose of a better understanding of the subject under consideration it will be necessary for me to divide ulnar hygromas into two classes—the acute and chronic. This will enable me to better explain the reason for their repeated occurrence and their non-occurrence.

By the acute hygroma I mean that condition of the elbow when it is first seen. Here we find an animal with a tumor of the elbow; it is hot, painful upon pressure, more or less œdema of the skin, the animal has more or less lameness. His condition receives the proper treatment, and in due time it disappears. There are no recurrences of the tumor, the severity of symptoms and size of the tumor depending upon the intensity of the cause producing it.

By the chronic form I mean when we have recurrences, or the cause producing this condition is not removed, and the result is an organized tumor. It is removed by surgical procedure, and still there are recurrences. I have seen cases that, in spite of treatment, developed into tumors, even after so-called preventive measures were applied; and in order to describe why they developed it will be necessary for me to enter into a discussion upon pathology, which I have no intention of doing.

For the time being we will turn our attention to the cow. Cows have these tumors, but they are rare, which fact can be explained by the difference in the anatomical structure of this region. I have seen but one case in a cow, and this individual animal had a well-developed hygroma of two-years' standing. A common condition of the elbow, which can be seen in cattle as well as in horses, is a thickened appearance of the skin upon the outside of the ulnar region, sometimes of a scabby appearance, or a large ulcerated wound will be found with the edges much thickened. This condition in cattle is found in milch cows confined in narrow stalls. The animal while lying in the recumbent position extends the foreleg on the side upon which it lies. It inclines the body to one side, propped up by the side of the stall or partition. The animal in extending the foot will strike the floor of the stall sufficiently hard to injure the skin, but no further, and in time we have the appearance of this condition presenting itself which I have described above.

The reason for the rarity of a well-defined tumor being found upon the elbows of cattle is that the sternum comes in contact with the floor, and the elbows cannot come in touch with the ground. The only manner in which the affected part can become injured is while reclining sideways with the side braced up by the partition. And again, horses and cattle do not assume the standing position alike. I say that cows do not wear shoes, they cannot lie upon their feet, and still, what causes this condition. Take the dog—especially those of the large variety. This is a common ailment, yet they wear no shoes. They cannot lie upon their feet;

still, what causes these tumors and their recurrence, even after surgical removal?

Take the camel. Its position while recumbent is unlike that of the cow and the horse, but while attempting to rise is entirely different from that of the horse and somewhat similar to that of the cow. Elbows, knees, patellar region, os calcis and foot rest upon the ground, and in these parts there is a well-defined thickened condition of the skin, almost bordering upon the appearance of a tumor. I never saw a tumor in these animals, yet they wear no shoes; they cannot lie upon their feet. Now, what causes this thickened condition of the skin and the absence of a well-defined tumor?

The same can be said of the giraffe. The buffalo is similar to the cow; elk the same. The bear, fox, tiger, and lion are like that of the dog. I saw a well-defined ulnar tumor in a lion the property of a circus. These animals cannot lie upon their feet; they wear no shoes, and still what causes these growths?

Even man is not exempt from this affection. In this individual case, which I saw in a hospital, the tumor presented all the typical appearances of an ulnar fibroma caused in falling, by striking the elbow upon the ground. This man was an epileptic.

I have read reports in the different medical journals in reference to the tumors. The authorities agree that they are the result of an accident, such as falling, striking the elbow upon some solid body, etc.

And again, take the horse with the chronic shoe boil, and admitting that the elbow and foot can come together, the foot can be dislodged most readily with one finger, which I have done numbers of times and in the presence of witnesses. Now, if there was any pressure it would require more than the strength of one finger to dislodge the foot. Again, some claim that the motion of the animal's body causes friction, thus producing this affection.

When an animal assumes the recumbent position, it is with the object of resting its body, not to keep in motion; and secondly, friction produces burning, chafing, scalding, and removal of the hair and skin. Not one of these conditions can be found to exist.

If an animal lies upon the right side he appears to place the weight upon the elbow and foot. Now, examine the right side, and you will find the side upon which most of the weight rests, and you will notice that the foot is either to the right or left of the elbow, and not resting one upon another, however, much they may appear to be. And again, take the vast majority of horses that do not possess this abnormality. They assume the recumbent position with the knees and hock flexed, the body inclined to one side. It is the normal position and a natural condition not usually conducive to produce this affection. Take for example, an animal resting in the recumbent position upon the right side. Note its position. The left knee is flexed, the foot and elbow are in almost direct contact, the elbow apparently resting upon the heels of the foot. Now grasp the whole foot with the hand, and you will find that it is most readily and easily dislodged, showing that there is little or no weight placed one upon the other, and because this is the position which is the normal one for an animal to assume we immediately accuse the shoe or the hoof as the offending agent, simply because we see the elbow and the foot in juxtaposition. We come to the conclusion that the hoof, or shoe, or both, cause this abnormality.

It is true that we sometimes find the hoof either to the right or to the left of the elbow, but this is not common in horses. We will consider the side on which most of the weight rests, as, for example, that of the right side, where we find the hoof in this case; the left can be readily seen, but the right is hidden from view by the animal's sternum and pectoral region, and also the bedding. Do we find the foot resting upon the elbow? I say, no. Here we find the foot in the axillary space, toe turned inward with the elbow resting slightly upon the transverse surface of the fleshy portions of the heels. The weight upon the parts is distributed in this manner: first to come in contact with the floor is sternum, anterior face of knee, anterior right lateral face of the shin-bone, phalanges, anterior left lateral face of the hoof. To dislodge the hoof upon this side and bring it forward or outward is a difficult task to do. It requires some strength. The cause of this is that the weight is not upon the hoof but upon the structures which I have just described.

A raw surface is very rarely seen upon the internal face of a shoe boil. It is only seen upon the centre in the upper portions or upon the outside of the tumor.

The position which I have found animals assume, and which I firmly believe to be the cause of this affection, is that an animal will, while attempting to assume a standing position, and which he will necessarily have to do, is to extend the foot and flex the knee, thus forming an arch with the foot and elbow resting upon the ground. While attempting to assume the standing position he strikes his elbow forcibly upon the floor or ground, thus producing various lesions. In the course of my investigations I have seen this occur twice, the animals evincing symptoms of acute pain and lameness the following morning.

I also noticed that those which were predisposed to this affection were animals that assumed this position when recumbent, and they slept with the head between the knees and the nose resting upon the floor. They usually rested with one side of the body close to the side of the stall. It will often occur when the animal becomes frightened and arises suddenly. It will then strike its elbow upon the floor in a forcible manner, thus injuring it. I know of one instance where this occurred. I removed a splinter of wood, about the size of a match, from the skin of the elbow region. The animal was very lame for a week, after which the lameness gradually passed away, and he made a good recovery with no recurrence.

I have attempted in this short article to express my views as clearly as possible, and I hope in the discussion which follows that I will be able to defend the ideas which I now hold.

PROFESSIONAL ETIQUETTE.[1]

By J. Payne Lowe, D.V.S.
PASSAIC, N. J.

The subject assigned to me is an important one to each of us individually and to us collectively as members of the veterinary profession; therefore it is worthy of the consideration of this Association.

It is only necessary for me to make mention of the rapid advancement our profession is now making in New Jersey; of her strong State Association and the good work it is doing; of the law passed at the last Legislature regulating the practice of veterinary medicine, surgery, and dentistry; of the appointment by the Governor of a State Board of Veterinary Medical Examiners; of the recognition our profession and associations are receiving from other professions and kindred organizations, and now of the organization in this county of the first county society in the State.

In view of all this, more is to be expected from us. Is it not important that each of us, at all times, live up to a proper standard of professional etiquette? Etiquette has been defined as the formalities or usages required by the customs of polite society or professional intercourse. It is not alone sufficient for the veterinarian of to-day to have the proper qualifications, both theoretical and practical, but he must observe the rules laid down by professional etiquette for his own individual benefit and for the welfare of his profession.

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[1] Read before the Passaic County Veterinary Medical Association, at Paterson, N. J., October 7, 1902.

Every individual on entering the veterinary profession is entitled to all its privileges and immunities, and it then becomes his obligation to exert his best abilities to maintain its dignity and honor and to aid in advancing it as a science.

We have in Passaic County, I believe, about twenty licensed veterinarians, all more or less actively engaged in practice and coming into contact, directly or indirectly, more or less frequently. It is necessary for each of us to plainly understand where our duties leave off and where those of the next man begin. Under the law we all have, whether graduates or non-graduates, the same legal right to practice, and, therefore, all are entitled to the same consideration.

Often an owner has an animal taken acutely sick or severely injured, and he will summon a veterinarian; but perhaps the doctor is out, and so he hurriedly calls another who happens to be in, and he responds to the call at once. After a short time the first called doctor returns, and he, too, responds to the call, only to find some one there ahead of him. Under usual circumstances the case belongs to the man arriving first; so after a few brief words with the owner and veterinarian in charge he should bid them good-day and retire, as it is undignified for him to remain, and perhaps his presence is annoying to the attending veterinarian, who at this time is busy and does not care to be interrupted. But there are duties of etiquette for the attending veterinarian to perform. He should, if possible, leave his patient a moment and greet his brother practitioner and make him feel at ease; and if the owner has acted rashly in calling upon both at or about the same time, he should explain to him that he has interrupted a practitioner in his routine work. Further than this, he should sustain his brother in collecting a fee for his visit, unless, of course, he has been tardy in responding to the call, in which case he should not expect a fee. If this is carried out with tact in practice it will have the effect of educating the laity and prevent much annoyance.

Again, sometimes two veterinarians are treating cases for their respective clients in a boarding-stable. Certainly neither one of them should so far lower his dignity as to even attempt to examine or express an opinion of the case in charge of his brother practitioner.

Sometimes a case under the treatment of a qualified practitioner does not show the improvement that the owner from his standpoint thinks it should—it is only natural for him to do a lot of thinking—and here is where a lot of tact is required on the part of the veterinarian in order to hold the confidence of his client. Different clients will act differently under such circumstances. One may, without the knowledge of the attending veterinarian, call in another practitioner. As a rule, if the second veterinarian so called in has his eyes open, and has the desire, he will discover what is going on. Knowing this, he should call upon the owner for an explanation, and should make no examination or give any opinion or treatment until he knows that the other veterinarian has been properly dismissed.

If a consultation is desired by the owner it is good sense for the practitioner to at once accede to it. In consultation the first object should be for the good of the patient, in the interest of the owner. Perhaps the case is complicated or obscure in its nature, and a consultation with a man of experience and judgment will enlighten the attending veterinarian; or, again, it may be held for the protection of the attending veterinarian—viz., in a necessarily fatal case, where the owner thinks possibly something more might be done to save the life of his animal—and here the consulting veterinarian can restore the owner's confidence in his doctor; or, again, a consultation may be held between several veterinarians, with the object in view of dividing the responsibility, as in the case of a valuable animal that may have to undergo an operation; or, again, it may be advisable to hold a consultation where litigation is apt to follow, in order to have sufficient expert evidence to satisfy the court of the conditions that existed.

However, whatever the object of the consultation, no rivalship or jealousy should be indulged in; and candor, with all due respect, should be exercised toward the veterinarian having charge of the case. The consulting veterinarian should, so far as he can, conscientiously sustain the attending veterinarian. After the history of the case is given and an examination of the patient made, they should retire for deliberation. Theoretical discussions should, as far as possible, be avoided as causing perplexity and loss of time.

The conclusion arrived at should be given to the owner by the attending veterinarian, in the presence of all concerned; and then, as a matter of courtesy to the consulting veterinarian, he may be asked to give the owner, in his own words, his opinion of the case. If the attending veterinarian has made a mistake in his case, and it is apparent, he should not take it to heart if his brother points out his error. As long as it is done in a kind way, and he is not unnecessarily exposed, he should feel that he has gained by the experience given him; and, above all, young men in the profession should show due respect to those older and with more experience. Perhaps on some rare occasion the two veterinarians cannot agree—a thing to be regretted. If the difference of opinion is of any practical importance they should call in the third man and agree to abide by his opinion.

I might go on almost indefinitely expatiating on the subject of etiquette, but will only add that as professional men we should observe the rules of etiquette in a liberal way, not only among ourselves as veterinarians, but among all scientific men and to people in general.

I do not wish it to be thought that this is intended as a criticism toward the practitioners of Passaic County, and I have no fault to find, for it has been my pleasure and profit to meet many of you in a professional way, and I can truthfully say that I have always been treated with perhaps more consideration than I deserved. However, we can all improve, and if the few salient points I have tried to bring out in my paper are actually lived up to in practice by the veterinarians of this county it will elevate us and our profession in the eyes and minds of the community, and we will reap the benefit thereof.

INJURIES CAUSED BY ILL-FITTING SADDLERY AND HARNESS.[1]

By Joshua A. Nunn,
VETERINARY LIEUTENANT-COLONEL.

When I was asked to read this paper I was somewhat at a loss to determine on a subject, but finally selected this, namely, "Some Harness and Saddle Injuries." I feel I owe an apology in bringing such a matter before you, as, strictly speaking, it is not one within the scope of veterinary science; but, nevertheless, to my mind, it is an important one, and one that among a certain section of our brethren it is, I am afraid, the fashion to ignore and look down upon.

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[1] Read at the summer meeting of the Lincolnshire Veterinary Medical Society, on June 19, 1902.

Gentlemen, we all of us aspire to be successful, and in this world to 99 per cent. of its inhabitants success is spelt by "money," and in our own profession I maintain to be successful we must not only be scientific practitioners but horsemen, and be able to show the horsey owner that we know as much and a little more of horse matters than he and his confidential studgroom put together, and that we can occasionally teach the latter worthy a trick or two at his own calling. It is my experience that such little things give the public confidence in the professional man, and although such matters may not be directly profitable they are the bait that brings the big fish to the net, and I therefore consider an acquaintance with the calling of the saddler of as much importance to us as is that of the blacksmith.

Into the construction of saddles and harness I will not enter, as you are acquainted with these matters, but will at once go on to describe the various injuries caused by ill-fitting and faulty parts. Before entering into detail I will remark that certain faults in the gear produced certain injuries, and that a person conversant with such can almost at a glance tell where the fault lies.

In the proper fitting of a saddle the true secret of success is that the whole of the weight-bearing portion should accurately correspond to the surface of the back, or, in other words, that the whole of the weight-bearing surface should be utilized. As you are well aware, a saddle cannot be put far forward on the withers, or it will pin in and interfere with the motion of the shoulder-blades, causing the horse not only to go short and pottering and to stumble, but also very likely cause abrasions on the sides and top of the withers from the points of the tree and gullet-plate. Also the saddle cannot be put far back on the loins, as the part is not adapted to carry weight, and the large propelling muscles would be interfered with. It, therefore, follows that there is only a limited space in the length of the back available, a weight-bearing surface of about twenty-two inches, and this is further reduced if we remember that it is only the flat surface of the rib between the backbone and curve that can be made available. If this is remembered, it can be realized how important it is that every available portion of the bar of the saddle should carry its due proportion of weight.

A position in which an abrasion is seen is on the centre of the spine just under the cantle, and, although it may be caused by the cantle-plate, in the majority of cases I think it is due to too short a saddle, the weight of the rider coming right back on the cantle. It is aggravated by the motion of the horse wrinkling up the skin of the loin at every step he takes, and this being forced against the saddle, which is pressed downward by the rider's position, gives rise to an abrasion. The obvious remedy is to use a saddle-weight, the tree.

Both longitudinally and transversely across the bars on the under surface pieces of webbing are fixed—the webs of the saddle. There is considerable art in adjusting these, and it is a long process, as if not properly done they will stretch and allow the weight of the rider to come on the centre of the backbone, where the tops of the vertebral spines are only covered with skin, and the certain result is a sore.

At the side of the swell of the tree a pad, the bellies, are fixed, over which the upper thighs of the rider come. If not properly stuffed a wound will be caused over the swell of the last two or three ribs. Although not important to the horse, the proper fitting of the bellies is one of some importance to the comfort of the rider, for if not adjusted to his seat and length of thigh it will cause him to sit in an uncomfortable position, either too far forward or back. This will not only give rise to an annoying chafe on the inside of the thigh, but if he rides over a fence is extremely likely to cause sprain of the rider's muscle, a serious injury that has put an end to many a good man's hunting days.

Under the pommel or head of the saddle is an arched piece of steel, the gullet-plate. Owing to the wedge shape of the withers and the weight of the rider pressing the V-shape of the saddle down on it, there is almost more strain on the gullet than elsewhere, and it is highly important that the plate should be of good steel. In some military saddles some years ago this was made of iron, and the result was that under the strain the tree spread and came down on the top of the withers, causing a gall. It is a matter of some controversy whether the head should be straight or cut back; both have been in fashion and both have their advocates. The straight head is the strongest, and is further away from the rider's fork if by accident he is pitched forward. The cut-back is perhaps not so likely to injure the withers if he "comes down," and it is a favorite with some dealers, as it shows off the slope of the shoulder better.

It is important that the points of the tree should not be too narrow, or they will press on the sides of the withers just below the upper and posterior angle of the scapula, and a gall will be caused in that situation. In fact, all the weight should be taken on the part below the junction of the bars, none above it. If the sides of the shoulders are pressed upon or pinned in, not only will there be a gall, but free motion is interfered with, and the horse is stilted in his action and likely to stumble. I have proved this many times over in the case of troop horses. A military saddle has the bars prolonged in front of the fore arch or gullet into "burrs" designed to carry the wallets, and which of necessity press on the top of the shoulder-blade, and I have frequently found that horses that trip and stumble in a military saddle go safely in an ordinary hunting one. I give you the hint, gentlemen, that when consulted as to a horse stumbling it is advisable to look at the saddle and gear as well as the shoes, as this is a point often forgotten.

The bars are, or should be, made of seasoned beechwood, but from a variety of causes they may be bent or distorted, what the saddler terms "cast," in either downward or upward direction. If cast up—that is to say, the ends being turned upward—the lower surface of the bar will be too curving, and all the weight will be taken on the centre; a sore will be the result over the swell of the middle ribs. If in the other direction, all the weight will be on the ends, and a sore made at the side of the withers at the point of union between the bar and gullet and over the swell of the last three or four ribs.

A troublesome sore is often seen on the off side of the withers from a side saddle. From the position a woman naturally leans, to the the near side, and, being seated higher above the back than a man, there is naturally more play; furthermore, all this is aggravated if the lady is not a good horsewoman and cannot sit square; the saddle is naturally drawn over to the near side, and the point of junction of the bar and gullet on the off presses against the side of the withers. I have found that a broad racing surcingle passing right over the seat of the saddle will greatly help to steady it, even with an indifferent horsewoman; but as it is not the fashion to use them, I suppose it is useless to suggest them to our lady clients, especially if they discovered that in it there was a reflection on their horsewomanship.

These, gentlemen, are the chief injuries from the saddle itself, and I will finish this portion of the paper before I go on to speak of others due to certain portions of gear.

All that I have mentioned are caused by the tree not being properly fitted, or, in other words, by it not being adapted to the lines of the back. Now, no doubt to a certain extent, these defects can be remedied by properly adjusted stuffing; still this is objectionable. The stuffing and panels should be looked on only as a cushion to prevent injury from the hard tree, and should be no thicker than is necessary for this purpose; if they are, not only is the weight increased, but the rider, being high above the back, does not get a proper grip and firm seat, but the saddle will roll about to a greater degree, even with a good horseman.

In these injuries a common device to prevent recurrence, or to work the horse, is to "chamber" the saddle. To be effective, the stuffing must be fairly thick. If it is not the centre of the chamber will touch the sore. The hollow must also be of considerable size, which is a point which most saddlers overlook; and above all things it must be made exactly over the injured spot. The usual practice is to put the saddle on the horse without girthing it up, then raise it up and make a mark where it is presumed it will touch the sore, and hollow it out. The result is not usually satisfactory, and it is easily proved by any one who takes the trouble that it is extremely difficult by the eye alone to mark the right spot off.

When it is desired to chamber a saddle the abraded part should be surrounded with a ring of some colored substance, such as soot and vaseline, and the saddle put on and girthed up by the person who is in the habit of doing it. The rider who has given the sore back should then mount the horse and move him off a few steps; when the saddle is taken off the offending spot will be marked clearly, and will be found, as a rule, not to be in the place that would have been fixed upon by the eye only. After the chamber has been made the same process should be gone through, and if the hollow is not soiled the work can be looked upon as satisfactory.

In fitting a saddle for any alteration it is important that the person who is in the habit of doing so should put it on, for in many cases faulty or careless saddling is all that is at fault; also, that the person who is in the habit of riding the horse should mount him, as there is a great difference in men's seats.

If the panel is thin and the rider grips close, the buckle of the girth may give rise to a gall. The best plan in this case I have found is to use a long girth strap and a short girth, so that the buckle comes down below the edge of the flap away from the pressure of the leg. The girth, if a web one, can be shortened by stitching a fold or tuck in it, but there ought to be a leather tongue under the buckle to protect the skin.

Some horses, particularly slab-sided ones with pinned-in elbows, will girth-gall in spite of every contrivance. In England web girths are generally used, and in this case the substitution of a cape raw-hide or a split-leather girth will often overcome the difficulty, especially if one or more of the strands be tied back so as to be clear of the sore place. In cases of necessity it is possible to work the horse with one girth fastened to the D to which the breast-plate goes, the other to those on the belly of the saddle. Such a contrivance is, of course, not very secure, and is somewhat unsightly. The old contrivance of a piece of sheepskin sewn to the girth is effective, but is often put on and neglected, the wool getting rubbed into a hard mass. It should be carefully dried after use and frequently combed and brushed. I have found a soft piece of numdah answer as well, and is not so unsightly.

If the breast-plate is too tight galls will take place between the forelegs, particularly if the horse is galloped. The obvious remedy is either to leave the breast-plate off or to loosen it. It is, of course, only caused by great carelessness; but, nevertheless, I have been before now consulted about such things. In such a case it is absolutely necessary that the man who usually saddles the horse should do so, otherwise it would be almost impossible to find out what was wrong.

I will now go on to speak of harness galls, which, to the majority of us, are more interesting than the saddle. It is an important point to remember that a saddle gall is caused by pressure, a collar gall by friction. In progressing, one foot and the corresponding shoulder, at whatever pace the horse is going, are in advance of the other, and it is only when standing still and "square" that the two shoulders are symmetrical; the result is that the collar is always oscillating from one side to the other. This can be proved by putting one on a horse and walking him past you, when the movement will be easily observed. The rules for fitting a collar are the same as for the saddle, viz., that the whole of the bearing surface should be utilized, and that it should coincide with the curves of the neck. When the way the collar moves is taken into consideration, the reason for this accurate adjustment is obvious, as, if only one point is bearing on the surface, not only will all the pressure be concentrated on it, but the collar, resting as it were on a pivot, will oscillate to a dangerous degree. This gives rise to undue friction, and a gall is the result. Collars can be too long and too short, too wide and too narrow; the terms speak for themselves, and the whole secret of fitting one is to hit off a happy medium, so that it fits close enough to avoid oscillation and friction, but not so tight as to pinch. In adjusting the length, remember that as the horse throws his weight into it the collar rises, so sufficient space must be left that the bottom will not impinge on the windpipe. When on, the collar should fit nicely and evenly; if it has to be forced down it is certain that in some place it is too narrow. If it see-saws a great deal it will have too much stuffing in the centre and not enough above or below. To test this, hold it steady at the top and move it from the bottom, where there should not be play of more than two inches from side to side over the shoulder-joints; if there is, it is too wide. At the bottom there should be space enough to admit of the fingers being inserted between it and the skin. I mentioned that the whole bearing surface should be in apposition to the skin, also that injuries were the result of friction. To this latter rule there is one exception, viz., if the top of the collar rests on the neck a troublesome pressure sore will be caused. This was noticed some years ago among the London Fire Brigade horses that are kept ready harnessed, the weight of the collar causing injuries of this nature. In old collars that get flat the edge of the after whale is likely to make a sore.

The top of the withers, at the spot where I mentioned a sore would take place from the collar hanging on it, is also liable to injury if the horse is used in double harness, by the pole chains being too tight and dragging the collar on to it. This can be avoided by stuffing the collar well below, so that the top will not come in contact with the withers; metal shields are also used for this purpose, and answer well, but the objection to them is that they are liable to be bent and broken, and if put on in this condition will injure the neck more than the collar. The injury on the upper part of the shoulder-blade, slightly to the front, comes from too tight a collar, and either some of the stuffing should be taken out or the collar stretched. It should, however be remembered that if it is stretched it is shortened in corresponding degree. Too loose a collar will cause injury, and, as a rule, it is found where the trace joins the collar. The true shape of the collar that causes this will not be seen till the traces are tightened, as when slack the collar rides forward. If a complaint is made about a collar I think it is almost more important to see it on the horse than a saddle, and he should be put into a trap and made pull. It is no use looking at the collar hanging around his neck to find out what is wrong, as I have seen done before now on many occasions.

These are some of the more important injuries caused by saddlery and harness, but the list is nothing like complete; and the matter of bits and bridles I have not touched upon, as it is a subject in itself.—*Veterinary Journal*, August, 1902.

LABORATORY NOTES ON POISON IN SORGHUM.[1]

By S. Avery,
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The symptoms of sorghum-poisoning in cattle are too well known in the West to require description. The theories that have been formed to account for the fatal results that have followed the eating of the plant are very numerous. For a number of years the veterinarian of the Nebraska Experiment Station, Dr. A. T. Peters, has investigated the various outbreaks, and some time ago arrived at the following conclusions:

1. There is no foundation for the theory that the animals choke to death.
2. There is no foundation for the theory that the animals die from indigestion.
3. Animals die from the effect of a poison which has been elaborated in sorghum of stunted growth.
4. The symptoms are those of prussic acid.

These observations served as a starting-point for the work of the chemist. About the first of last August Mr. Henry B. Slade, formerly assistant chemist to the Nebraska Station, now chemist of the Idaho Station, discovered that prussic acid could be obtained from the stalks of sorghum taken from a field of poisonous cane. Mr. Slade also observed that there is evidence that the prussic acid is present as a glucoside and is liberated by an enzyme. On the 26th of August the writer of this paper took up the work. With the data at hand it has been comparatively easy to move rapidly toward a solution of the entire problem.

If green sorghum leaves (say 100 grammes) be ground up, placed in a flask with three times the weight of water, and the mixture distilled, prussic acid may be detected in the distillate by any of the well-known chemical tests. I hold in my hand three tubes containing prussic acid derived from cane. The acid, to be sure, is not present as such, but has been converted into highly colored derivatives. No. 1 is from a field near the station, which had escaped the frosts. The acid has been converted into ferric sulphocyanate. No. 2 represents acid from the same field converted into Prussian blue. These two samples were gathered September 30th. No. 3 represents a field from which several cattle had eaten, with fatal effect.

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[1] Read at the meeting of the Iowa-Nebraska Veterinary Association, Omaha, October 2, 1902.

The writer has tested sorghum—big and little, young and old—and has never failed to find at least traces of prussic acid in the living leaf. Kaffir corn leaves also contain this poison; but other forage plants—clover, alfalfa, grasses, and corn—give no test for prussic acid. The attention of those who, in the past, have confounded sorghum- and kaffir corn-poisoning with indigestion and bloat is respectfully called to this observation.

About September 8th a careful examination of a field of healthy sorghum was made. The stalks stood eight feet high and the heads were well out. This field was estimated to contain thirty tons of green sorghum per acre. The amount of prussic acid present was about one pound per acre. This amount, distributed as it was through thirty tons, was well below the danger mark. A determination of the amount of prussic acid in some second-growth sorghum showed that the latter contained just twice the percentage of the above. This is also safe, but might become dangerous if we should have two or three weeks of warm, dry weather.

The prussic acid in sorghum and kaffir corn is found in the stems and leaves. It has not been detected in the seed in stalks as large as a lead pencil, or in roots. If sorghum of fair growth, about four feet high or higher, is ground up, stalks and all, and distilled, little or no prussic acid is found in the distillate. Now when cattle eat sorghum of stunted growth they consume not only feed abnormally high in poison, but exactly the part of the plant where all of the poison is found. On the other hand, sorghum of good growth offers to the animal leaves weaker in poison, palatable parts free from and probably more or less of an antidote for poison. Experiments carried on at the Nebraska Station show that prussic acid is much more active when administered by itself than when first mixed with grape-sugar.

The question as to the form in which prussic acid exists in the plant is still unanswered. A discussion of the data at hand would be of more interest to chemists than to veterinarians. It is sufficient to say the acid is not present as free acid, since the dried plant still may contain relatively large amounts. Samples kept for six weeks in the laboratory give strong tests for prussic acid. On the other hand, a sample ground up and moistened with water lost all of its prussic acid on drying.

If the writer may venture from the safe ground of experiment into the uncertain field of speculation, he would suggest that the presence of nitrates in the soil may facilitate the formation of prussic acid in the plants. It is well known that in semi-arid sections much of the nitrogen in the soil is in the form of nitrates, while in well-watered sections the greater part of the nitrogen is combined with humus. May not this fact explain why sorghum stunted by an occasional dry season is seldom fatal to stock in the East, and that many of the most severe outbreaks occur where irrigation is practised?

In conclusion, let me say that I trust that these laboratory notes of the chemist have fully confirmed the diagnosis of the veterinarian.

RABIES.[1]

By A. J. Pistor, D.V.S.,
FREMONT, NEB.

As our knowledge of diseases and medicine increases so does the subject of preventive medicine take a more important place in the medical profession. When considering a medical problem to-day one of the important factors considered is that of prevention, and in the case of infectious diseases that also of eradication. In this the quarantine laws and the methods of isolation become factors of great importance; and that they shall be of value they must be constructed in such a manner that they will conform with our advanced ideas.

From a standpoint of practice rabies must truly be considered as to its methods of prevention. With this idea in view I will briefly go into a description of our knowledge of rabies, and will then consider rabies from a standpoint of prevention, and with this would naturally follow its eradication.

Rabies is an acute specific disease caused by a specific organized substance. It is propagated by direct inoculation either naturally or artificially. By natural inoculation I mean either by the bite of a rabid animal or by the virulent matter being absorbed into a wound or abraded skin, as would happen when a rabid animal is allowed to lick the skin. Artificial inoculation relates to laboratory methods.

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[1] Read before the Iowa-Nebraska State Veterinary Medical Association, October 1, 1902.

That there is a specific agent which causes the disease has been proven by every investigator who has had any impartial dealings with the disease. He has inoculated and reinoculated the virulent matter, with practically the same results in every case; and when a sufficient number of parallel test inoculations were made the experiments were continued from the original virulent matter through a long series of animals. The active virus has not as yet been described, yet the burden of proof all points toward an organized body. Paul Bert proved that virulent saliva from rabid dogs could be made inactive by passing the saliva through a plaster filter, thereby arguing that the virulent part must have some structure or it would not be capable of being detained in the pores of the filter. Its history, its mode of propagation, its period of incubation, its pathological lesions, all indicate an organic virulent agent. Australia has remained free of the disease, because the active agent was excluded from the country by a strict quarantine regulation of all imported dogs. England has now rid itself of rabies by strict measures, and only through the introduction of a new case from some other country will it again appear in that country. The infectious substance is produced or grown in the living body, and soon loses its virulence after the death of the body which harbors it.

Children and animals which practically are not capable of worry are the victims in the greatest number of cases. This would be a way to overcome the psychological cause, as argued in the past, but which argument is hardly necessary in view of the large amount of positive evidence reported in every outbreak and proven in every set of experiments as to the actual existence of a virus.

Rabies is reported in many species of animals. Even birds (pigeons) are not immune, as reported by Kraus and Clairmont. Its greatest numbers of victims are among the dogs; but cattle, horses, pigs, and other domestic animals are also frequently affected. The age, sex, or condition of an animal is no guard against its invasion. From every clime come the reports of its existence. In this section of the country it is greatly on the increase, and consequently it is of great interest to the economists of this district.

Its period of incubation varies greatly, and no positive opinion can be given as to its length of time in some individual or animal after the same has been bitten. It lasts from a very few days to a year, or even longer, some cases being reported where the period lasted fourteen months before the symptoms manifested themselves. Pasteur has proven that the smaller the amount of virus injected the longer the period of incubation. Again, the nearer the nervous centre the inoculation was made the shorter the period. The less contaminated the virus the shorter the period of incubation; so virus taken from the brain proved to be the most active in its results.

The symptoms are quite similar in all species, and are mainly of a nervous order, mental excitement being the most prominent manifestation. A change in the demeanor of the animal will first be noticeable. The animal may be a least bit uneasy, and will seek some quiet or dark place, but will even move about restlessly while there. It will try to crawl under some straw or rags or anything around; then it will tear and shake these articles, and will swallow some of them. It will howl, and its howl will be strained and unnatural. It may be more friendly or more vicious than usual; then it will attempt to run away, and if loose will run, again returning or dying on the road. It will bite at all objects that may happen in its path. Horses will smash their stalls, rub their lips so that they become lacerated, kick, bite, and be generally vicious; sometimes they act colicky. Cows will bellow, run, suddenly stop, throw about their heads, and snort, chase, and try to hook other animals. Hogs will tear up the bedding, bite at articles with which they come in contact; also bite at animals. Gradually paralysis sets in, and then death ends their suffering.

Clinically there are two forms of the disease—the furious or violent and the dumb or sullen. Between the two there are all stages of modification. In the dumb form the vicious period is usually absent or hardly noticeable, the paralytic stage immediately following the initial or melancholic stage.

The symptoms usually last from three to five days, but may be as short as two days or as long as ten days. In birds it lasts longer than this, and the bird virtually dies of starvation, due to paralysis of the larynx and pharynx.

The sections are diagnostic by their negative presentations. Besides some inflammatory lesions on the mucous membranes there are few other manifestations. The stomach of the dog may and usually does contain foreign matter. The bowels are quite empty. Some signs of constipation may be present. The microscopical lesions are of such a nature as to be of little use to the general practitioner, hence I will omit them.

Having briefly and hurriedly gone over the pathological discussion of rabies, I have omitted many points which would be necessary to make that subject complete; but I think that I have enumerated the most important points, and will now finish my subject with the treatment and prophylaxis of rabies.

When a person or an animal is bitten by a rabid animal it is first in line to rid the wound of any virus which may have been inoculated, or else to so destroy the virus that it loses its virulence. Nothing being at hand, sucking the wound very forcibly would be in order. This would have a tendency to draw out the virus, and would cause a greater flow of blood, thereby washing out the virus and avoiding absorption; or excision of the wounded parts may be practised. The actual or chemical cautery may be applied, as the hot iron, corrosive sublimate, nitrate of silver. Antiseptics, as creolin, carbolic acid, etc., may be used as a dressing. The foregoing must be applied as soon as possible after the injury. If too long a time is allowed to elapse the virus may be absorbed, and then local treatment will be of no avail.

The Pasteur treatment is next in line where human subjects have been inoculated or bitten by a rabid animal. This treatment has been extensively administered, and statistics are very much in its favor. After the symptoms appear no treatment has proven itself efficacious.

When a person is bitten it is advisable, if possible, to secure the attacking animal, place it where it can do no further harm, and then carefully observe the developments. If there is any doubt about the case a part of the brain may be inoculated into another animal or two. Rabbits answer for this purpose very nicely. By inoculating these test animals into the coats of the brain results are more readily and positively obtained, a rabbit reacting in from eleven to twenty-one days.

To introduce preventive measures is no easy matter. On this score one encounters many obstacles. If one could be assured that the preventive measures would be obeyed to the letter the stamping-out process would become a simple matter. In this case dogs are our first object of attack, because the disease most often appears in them and because it is spread by direct inoculation—a bite. Dogs are allowed the freedom of our cities and country, and thereby the spread of rabies is greatly facilitated.

To inaugurate any measures which will control these dogs would immediately arouse the antagonism of a large percentage of dog owners. They would personally agitate against such measures, and under the cloak of humane societies they would spread much opposition to such work. In fact, they would fight it on every ground, both real and imaginary. Yet in so doing they would simply display their ignorance, for notice the actual results which have been obtained from time to time in many different localities by the control of dogs—especially so in Berlin and Vienna, where rabies has been prevalent in direct proportion to the freedom given to dogs; in England, where the disease has been practically eradicated through the muzzling of dogs and destruction of all supposed cases; in Australia, where it has never appeared, due principally to the strict quarantine against all dogs seeking admission to that country.

The measures to be adopted should be both general and special —general as pertaining to all dogs, and special in those cases where the symptoms have actually appeared or where an animal has been exposed.

As general measures I would advise the licensing of all dogs; the establishing of dog wardens, whose duty it would be to enforce the dog license and to catch and destroy all dogs which have not been taken care of by their owners. In order to identify licensed dogs they should be properly provided with a tag. The warden might act in conjunction with the board of health, and so take direct charge of rabid and exposed dogs. Dogs should be excluded from the public highways except when properly muzzled and led by a chain.

Under special regulations would come the reporting of all cases of rabies to the proper authorities, the disposal of such cases, and the proper control of all exposed animals. Exposed dogs might be immediately destroyed, as a quarantine of such dogs for three or six months would not positively include every case, the period of incubation being very irregular, it frequently extending over six months. To make the period one year would not even catch every case, and as dogs live but comparatively a few years, it would be a matter of economy to destroy the dog rather than extend the quarantine period and remain in doubt for that length of time. The report of a case should be followed by a close observation of all dogs in that section for a definite period of time, say six months. These measures can be modified by the authorities according to their judgment and the observation of new cases.

In this section and west of here I wish to particularly call your attention to the possibility of wild animals conveying the disease, especially coyotes and wolves. They are quite dog-like in their nature, and act very similar to dogs when affected. They will become quite bold and venture into the roads, pastures, and farmyards, and there attack the farm animals. In this case I should advise active measures which would annihilate them. Again, I would warn against strange dogs that are running aimlessly about the country, dirty, and perhaps having a tendency to attack objects; or to familiar dogs that are suddenly manifesting a changed disposition, as that might often be but the initial stage of rabies. The saliva being virulent several days before any noticeable change is seen, it would be advisable to discontinue the habit of allowing dogs to lick one's person.

THE NEW ERA OF VETERINARY MEDICINE.[1]

BY PROF. JAMES LAW, F.R.C.V.S.,
ITHACA, N. Y.

(Concluded from page 612.)

LET us now glance for a moment at tetanus. Until comparatively recently no one scarcely suspected that tetanus was an infectious disease. It was believed to be the result of local irritation and nervous excitement, and there is yet a widespread idea that any violent pain is likely to bring on the affection. This received countenance from the frequency with which it followed deep wounds of the palms and soles in man, the feet, tail, and testicles in the horse, from lesions of unyielding fibrous tissues, and from gunshot and bayonet injuries. The fact was overlooked that the affection often started during or after cicatrization, when the real irritation had in a great measure passed. Since the discovery of the bacillus of Nicolaier we know that this anaërobic germ flourishes in deep, closed wounds only, under the skin, fascia, or tendon; therefore, in stab and bullet traumas par excellence, in which there is abundant exudate outside all circulation of blood or oxygen, and that it will not invade the circulating blood in which oxygen is relatively abundant. We are no longer in the dark, left to meet it blindly by antispasmodics alone, but we know how to prevent it by asepsis and antisepsis of wounds, by exposing deep dirty wounds to the action of the air, by dressing with antiseptics the navel of the newborn, and by ridding the subject of intestinal worms which make infection atria for the bacillus.

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[1] President's Address delivered before the New York State Veterinary Medical Society, Brooklyn, New York, September 9, 1902.

Formerly a large number of young animals died of purulent arthritis and diarrhœal diseases very shortly after birth, the affections being attributed to weakness of constitution and faulty feeding. To-day we place the finger on the source of trouble in the infective omphalitis, from which the septic microbes find their way in the blood to produce inflammatory changes, microbic degenerations, and secondary abscesses in the liver, lungs, joints, and alimentary canal.

Our herds of horses and cattle alike, and our flocks, suffered largely from abortions, which were attributed to constitutional infirmities, faulty feeding, mechanical injuries, and emotional disorders. Now we know that different infectious microbes living in the genital passages are largely the cause of the trouble, and that the malady is just as amenable to treatment and prevention by sanitary precautionary measures as are any of the diseases that have been long recognized as due to contagion.

Many of us can recall when actinomycosis was known as cancer, clyers, spina ventosa, or osteosarcoma, terms that served to cloak our ignorance of its real cause and pathology. To-day we know that it is simply a culture in the living tissues of the beautiful ray fungus or actinomycosis; we can trace its secondary causes in the sowing of its seed in wounds and natural openings and recesses, and can not only ward off its approaches, but in all moderate cases we can subject it to effective treatment, medical and, it may be, surgical as well.

Dourine has been known in Europe since 1796, and in 1882 was introduced into Illinois in the body of a French horse. Until very recently, however, it was very much misunderstood. Bouley, Trasbot, and others accepted the fiction that it is syphilis communicated from man to horse, and propagated thereafter as an equine disease. Others considered it as glanders affecting the genital and nervous systems. To-day we recognize its cause in the trypanosoma equiperdum, an infusorial parasite which lives in the blood and genital passages, and can be successfully transferred to the dog. Surra, or rot of the hot rainy season in Hindustan and neighboring countries, like rinderpest, now threatens us through our Philippine dependencies.

This affection of solipeds—camels and elephants—was supposed to be a form of remittent or bilious fever allied to that of man, but is now traced to another trypanosoma (T. Evansu), differing from that of dourine, among other things in that it is transferred from animal to animal by blood-sucking flies and other insects.

The nagana of East Africa, due to another trypanosoma (T. Brucei), and which is not infecting to elephants, was only known late in the last century, and was long attributed to a special poison instilled into the wound by the tsetse fly (Glossina Morsitans), which is now known to convey the trypanosoma.

Here we have a new class of infectious diseases introduced into our veterinary literature, one of which (dourine) has already gained a foothold in the United States, and a second (surra) threatens us through our Eastern dependency. It may be but the turning of a new leaf, as other animals suffer habitually in certain countries from trypanosoma; a parasite of this kind (T. Lewisi) is common in rats in Asia and Europe; another invades the systems of the dog in South Africa and Europe, and certain inscrutable diseases of South America and elsewhere are quite suggestive of this class of parasite.

In 1888 Starcovici found pyriform organisms in the blood globules of Roumanian cattle the victims of hæmoglobinuria; the following year what appeared to be the same parasite was found by Th. Smith in the blood globules of cattle suffering from the corresponding disease in America—Texas fever. Later it was found in Australian victims, and still later in the tristiza of South America. Thus was another of the most deadly infections of animals traced to its true source. But the advance of knowledge did not end here; shrewd observers as early as 1868 had noticed that Texas fever never occurred in the absence of the cattle tick, and in 1889 our colleague, Dr. F. L. Kilborn, was so impressed with this fact that he secured permission to put it to the test under the auspices of the Bureau of Animal Industry. His expectations were confirmed in every particular, and his results were soon endorsed by observations in all parts of the world in which this disease was known to prevail. To-day the bearing of the piroplasma by the tick is, perhaps, the most important fact in connection with the disease; it is the pivot upon which prevention revolves, and it bids fair to be the foundation on which the final extinction of the malady will be based.

The doctrine of tick causation has borne fruit in other directions. The louping illness of sheep in Northern Europe has been traced to the ticks in the pastures, and what was long a mystery to flock-master and veterinarian alike has been now cleared up and a substantial basis for prevention furnished. The agency of flies and other insects in the transmission of chicken cholera, typhoid fever, anthrax and other diseases in summer has been demonstrated, and certainly has taken the place of speculation in matters essential to sanitary policy.

In the same way at every step we have learned of the agency of birds, wild and tame, in the transmission of infection, sometimes as being themselves the victims of the pathogenic germs, sometimes when they become mere bearers from feeding in the same troughs with the sick animals, and other times still because they are devourers of carrion, and feed upon the carcasses of the victims of a pestilence. In their turn the vermin which approach and feed in our stables, stock yards, and parks, have to be taken into account as infection-bearers. Thus, the field of the veterinarian has been continually widening. An acquaintance with the infinitesimally small organisms in both the animal and vegetable kingdoms, and as far as possible with their life-history, become a *sine qua non* of modern practice.

In this microbian pathology is involved the whole subject of immunization and serum therapy. Into this fascinating subject I cannot enter here further than to say that immunization is mainly based on our power of investing the leucocytes and tissue nuclei with the habit of producing defensive products which are inimical to the invading microbes or chemically neutralize their toxins, while serum therapy utilizes the same antitoxins already formed, and while introduced into the system in full doses will operate at once without waiting for the work of the leucocytes in forming these defensive serums. In their action the two differ essentially in this respect, that when the leucocytes have, by contact with a non-fatal dose or doses of the toxic matters of the microbes, been habituated to the production of the requisite amount of antitoxins, the habit remains, and for a length of time the animal is immune from the effect of any ordinary dose of the microbe. When, on the other hand, the antitoxins alone are introduced into the system, the microbes and their toxins are neutralized and the animal protected from the commencing or pending attack, but the leucocytes are not stimulated to produce their own antitoxins, and the moment the defensive injection has been used up, any toxins that may be present can resume their sway.

The adaptability of these systems varies greatly in the case of different microbes and subjects. In one disease the new direction given to work off the leucocytes has an effect as lasting as life; in another, a second attack may follow in a very short time. The first is a fit subject of immunization; the second is not. Again, in one disease the microbe can be robbed of its vitality or virulence by different agencies, which do not destroy the toxins; in another the toxins are more readily destroyed than the microbe, so that the training of the leucocytes to the defensive habit becomes impossible by the same method. The principle is largely the same for all, but the *modus operandi* must vary with the disease and its product. There is no royal road to immunization or to serum therapy, but working from the same fundamental principles the technique must be worked out independently for each malady. Yet, taken as a whole, it is a division of the new medicine and one of the most fruitful branches of the microbian pathology.

But we must not confine our attention to the infinitesimal, under the delusion that here only our new pathology bears sway. We must become familiar with the animal kingdom in order to an intelligent management and control of infections that are transmitted through the instrumentality of the feral fauna.

Again, the importance of the animal kingdom has always been recognized in connection with parasitism, but in the past half century the comparatively few parasites previously esteemed important in their pathogenesis have been multiplied a hundredfold, and here again a practically new field has been opened up for veterinary study. Some of these parasites are among the most redoubtable and destructive known. Need I name, for I must do no more, the actinomyces, coccidia, strongyles of the lungs and bowels in different animals, the tænia, the bothriocephali, the sclerostomata filaria, and other blood parasites, the œsophagastomata, the trichinæ, the aspergilli, and the acarini, of internal organs in all their species and habitats. But I must not delay on the almost endless list of parasites, even to enumerate their genera.

One disease, however, has been so far omitted that it would be almost criminal to leave it out of our list. When, in 1865, Villemin published the results of his experiments in the production of tuberculosis by inoculation with the virulent matter of the tubercle it was met by an all but universal opposition. A vulgar opinion in certain localities, and a silent conviction of certain veterinarians, based upon their observations in herds almost alone, coincided with the brilliant French investigator. But this came in an age when authority could no longer crush facts, and slowly but surely the facts triumphed, and a foundation was laid for—what must still after thirty-seven years be referred to as—the *future extinction* of the most insidious and deadly plague of man and animal. Seventeen years passed ere Koch crowned the work of Villemin by the discovery of the bacillus tuberculosis, for which the world was now in a measure prepared, and now after twenty years more we are still debating the unity or plurality of the tubercle bacillus. Truth travels slowly, but under our modern *a posteriori*, or scientific method, its final triumph cannot be doubted. Already we have learned some of the variations of the dread bacillus, its lines of easy diffusion and those that prove difficult and uncertain. And already we see that varieties of this bacillus which have, in accordance with their environment, assumed habits the most diverse, can be restored to one common character even as regards pathogenesis. The stumbling blocks are being gradually removed, and we are daily approaching nearer to the time, when, for both man and beast, tuberculosis shall be shorn of its greatest dangers, and the tribute of one-eighth of humanity and a large proportion of our live-stock to the insatiable bacillus shall be reckoned a thing of the past.

Gentlemen, I have held your attention too long. I have sought to establish the position that we meet under different auspices than confronted our predecessors. Times have changed, veterinary medicine has changed, and no less our duties have changed. I have hardly touched more than one phase of the mighty transformations of the medicine of the past half century—the new microbian pathology. I would like to add that this pathology and this change are by no means limited to the field of animal plagues, but must be dealt with in the different phases and stages of the majority of what are still to be considered as sporadic diseases. And if we could enter into the allied field of medicine we would everywhere meet with changes, advances, and demonstrations only less than we find in pathogenic microbiology.

The change in conditions demand a change in our attitude and effort; as a profession we can only hope to retain the confidence and support of the public by showing that we are in full relation and sympathy with the medicine of modern times.

In the past the veterinary profession of New York have had the humiliation of seeing medical men and laymen appointed to do work which rightly belonged to the veterinarian, on the alleged ground that the latter is deficient in the education and skill necessary to fulfil the duties of the place. The profession and the public have alike suffered, and they will continue to suffer more or less until we can confute our detractors by pointing to a body of men who are amply trained for this work and whose fitness is guaranteed by the legal demand of a high standard for entering and practising the profession. We have, to a large extent, secured such a standard, one that aims higher than that of any other State in the Union. The main drawback is the illegal entry or practice in the State of those who are not up to the standard required, and who seek to secure the esteem, the confidence, and all the rights and immunities of those who have entered on practice through the legal doorway. These men are violating the law, they are doing violence to every sense of honor, and they are doing their best to degrade the veterinary profession, for by unchallenged practice in the State they are setting a standard in the mind of the stock-owner by which the whole veterinary profession is of a necessity graded.

By the State law this Society is set as a guardian over this matter. The Society must nominate the men who shall preside over the examinations for *license to practise* in New York, and on this Society is imposed the duty of authorizing the prosecution of any one who may practice without this license.

This duty presses on every veterinarian in the State. If he declines to assume it he is unfaithful to his profession; he is contributing his influence toward excluding the profession from its rightful field of work and toward the denial of the State and its great live-stock industry of the valuable service, which, under the statute, they have a right to expect. The modern advances in veterinary medicine demand of us new duties, and by the terms of the statute the responsibilities are laid upon our shoulders. The question comes to every member of this Society and to every legal veterinary practitioner in the State: Can you be trusted to meet the responsibility laid upon you? Will you prove yourselves worthy of the highly honorable duties imposed upon you by the law of the Commonwealth?

It is to be hoped that before it separates this Society will take decided steps toward the maintenance of the law in its integrity. It is to be further hoped that every member of the Society and every legal practitioner in the State will frown upon and give his active opposition to any attempt that may be made to make any man a legal practitioner by special enactment and in defiance of the existing law and of the Regents Board of Veterinary Examiners.

It need only be added that for the meeting now in session the programme presents a varied list of practical papers and surgical demonstrations which should call forth the best discussion. While we are all grateful to the gentlemen whose names are on the programme, their praiseworthy efforts will be largely lost if they fail to draw out the combined wisdom and experience of the hearers as well.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

TREATMENT OF CORNEAL ULCERS. Ulcerations of the cornea as a complication of simple keratitis, distemper, and malnutrition are common. Cadiot recommends the instillation of a solution of permanganate of potash, 1:200. He cites some cases in which by this treatment he has obtained rapid recoveries.—*Rev. Vet.*

CASTRATION OF THE BITCH. To produce anæsthesia Ehrhardt gives subcutaneously ¾ to 1½ grains of morphine, according to the size of the animal. A ligature is placed around the ovarian ligaments. The ovary is then severed from its attachment with scissors, and the broad ligaments cut to the bifurcation of the horns. The same is repeated on the opposite side, the uterus ligatured, and the ovaries and cornu removed.

He practised simple ligation of the ovarian ligaments without removing the ovary. Some of these bitches came in heat, and several bore a litter of puppies. Several were recastrated four or five months after the first operation. The ovaries were considerably hypertrophied; in one case there were adhesions with the intestines; the uterine horns were double their volume. In some the ligature was still found, but was more or less encysted.

Ligaturing, therefore, is sufficient to make the bitch infecund. Removal of the uterine horns guards against impregnation if, by accident, a fragment of the ovaries is left in place.—*Ann. de Med. Vet.*

IODIDE OF POTASH IN THE TREATMENT OF LAMENESS. The case cited by Schenkel was a horse lame for three weeks. Although there was no exostosis, spavin was diagnosed, and a blister applied. After eighteen days of rest the lameness was as marked as before. Hip-joint lameness was then suspected, and liniments were applied upon this region.

After eight weeks there was no sensible improvement. Supposing that there might be a specific, probably rheumatismal arthritis, 10 grains of iodide of potash were administered daily in the feed. In five days the lameness was much improved, and in five days more it had completely disappeared.

Schenkel recalls lameness in the foreleg of a dog as a sequel to distemper. Stimulating applications were ineffective, and the lameness disappeared completely after the daily administration of 1 grain of iodide of potash.—*Ann. de Med. Vet.*

MULTIPLE CEREBRAL HEMORRHAGES IN THE HORSE. A horse, seven years old, fat and plethoric and in good spirits, had taken active exercise on a trot and gallop. The next morning he was immobile and unable to get up; when raised he tottered, and could stand only with difficulty; respirations regular; pulse full and rapid; temperature 39.6° in the morning and 41.1° in the evening.

The treatment consisted in bleeding—four quarts—stimulative, and laxative preparations. Prostration and coma increased, and, finally, all functions ceased.

At the autopsy the central nervous system in general was of a citrine color, especially around the hemorrhagic areas, due to rapid decomposition of the blood. Abundant multiple hemorrhages were found in the cerebellum; in the cerebral hemispheres they were quite extensive. The corpora striata, cerebral peduncles, and the medulla were intact, which explains the slow evolution of the symptoms.—*Ann. de Med. Vet.*

FISTULA OF THE POLL FROM FOREIGN BODY. An Anglo-Norman mare running in the field produced a contused wound of the poll, which afterward suppurated. This wound cicatrized rapidly under the ordinary surgical treatment. One morning the coachman while grooming the mare found a small fistula, from which a few drops of pus were discharged, and necrosis of the nuchal ligament was suspected.

At the Lyons Veterinary School Cadéac opened the fistula and found several pieces of wood, forming a combined mass of one cubic centimetre, encysted, and resting upon the occipital bone. The bone was curetted and the tract cleansed with corrosive sublimate; cicatrization followed rapidly.—*Ann. Vet. Med.*

MENINGITIS IN THE DOG. Meningitis may result from distemper, traumatisms and injuries, and diseases of the surrounding tissues. The symptoms are usually attributed to cerebral troubles.

Among the most common causes of cerebral meningitis are injuries to the eyes and affections of the ears. Cadéac mentions a bull-dog with the eye perforated by a cat; no treatment was at first given, and the eye soon suppurated, involving the deeper tissues. Two days afterward symptoms of meningitis, accompanied by vomition, developed. The animal succumbed suddenly, and the necropsy revealed a fibrino-purulent exudate into the meninges, especially at the base of the brain.

Tumors of the ocular globe and of the sinuses sometimes cause meningitis by causing absorption of the cranial wall. Traumatisms of the cranial wall, on the other hand, produce concussion and injure the cerebrum without determining any meningeal troubles. Trephanation of the cranium, so dangerous in the horse, is benign in the dog.

Meningitis of auricular origin is not rare. It may succeed chronic auricular catarrh, tumors, and infection of the middle ear due to alterations in the Eustachian tube. Cadéac mentions a dog, two years old, succumbing in three days to cerebro-spinal meningitis consecutive to an internal otitis resulting from an infection propagated successively by continuity of structure from the trumpet of the Eustachian tube to the external ear, and from the latter through the auditory nerve to the meninges and the cerebrum.—*Ann. de Med. Vet.*

GENERALIZED ALOPECIA IN A COW. Vaché reported a cow, nine years old, which had at the age of five years circular bald patches on the skin which increased and finally coalesced until, at the end of a year, the entire body was denuded of its hair excepting a few on the left cheek and the end of the tail. All applications were useless. The skin was of a brilliant black color. The animal was otherwise in perfect health.

HÆMOGLOBINURIA OF MUSCULAR ORIGIN. The pathogenesis of hæmoglobinuria as seen in so-called azoturia is in many points still obscure. Classical writers claim that hæmoglobinuria results from the red blood corpuscles. Some assert that this destruction takes place in the blood—hæmoglobinæmia—and others, that the kidneys are the seat of the disorganization—renal theory.

Camus and Pagniez have endeavored to determine if hæmoglobin can be found in other parts of the body, and confined their studies to the striated muscle tissue. They have prepared a muscle juice as follows: From a chloralized dog 15 grammes of muscle were removed, triturated with enough cold distilled water to obtain a filtrate of 50 to 60 c.c., to which was added enough sodium chloride to make it isotonic with the blood.

This solution is then introduced into the saphena vein of an anæsthetized dog. In from ten to thirty minutes the urine removed with a catheter is rose-colored, and the spectroscope shows the two rays of oxyhæmoglobin; there is hæmoglobinuria. There are no blood corpuscles in the urine. They have found that in order to produce hæmoglobinuria by injecting hæmoglobin obtained from the blood corpuscles a larger quantity of the latter is required.

The authors then experimented to determine if this phenomenon could result in consequence of muscular lesions. They injected 150 grammes of water at 5° C. into the thigh muscles of a chloralized dog; trembling and contraction followed. In half a minute hæmoglobinuria was evident.

Then arose the question whether the muscle juice does not contain some substance which may cause the elimination through the kidney of the hæmoglobin of the blood. The muscle juice was heated for fifteen minutes at a temperature of 56°, and when injected alone after cooling or mixed with hæmoglobin no hæmoglobinuria followed. It will thus be seen that muscle juice contains a substance that acts upon the kidneys, producing hæmoglobinuria, and that the muscle hæmoglobin passes through the kidneys more readily than that obtained from the blood cells.

These results seem to sustain the theory that *hœmoglobinuria a frigora* (azoturia) is at present a breaking down of the muscles, possibly from a myositis rather than a destruction of the red blood cells. According to Jobelot, myositis always exists in this affection. This is the theory entertained by most German authors.—*Ann. de Med. Vet.*

Dr. D. B. Dennish, of Trenton, N. J., was a visitor to Philadelphia in October.

EDITORIALS.

PENNSYLVANIA'S CONTRIBUTION TO THE STUDY OF IMMUNITY TO TUBERCULOSIS.

In this issue we publish a paper by Pearson and Gilliland, on the "Immunization of Cattle against Tuberculosis," that is notable because it describes the first American work that has been done in this field. This paper accredits to de Schweinitz the honor of having first shown that animals might be rendered more resistant to tuberculosis by inoculating them with cultures of attenuated tubercle bacilli. This work was done in 1894 upon guinea-pigs, but was not pushed to a practical application. It appears that McFadyean was the first investigator to observe that cattle could be made more resistant to tuberculosis by a process of inoculation with tubercle virus, but his work was not systematized and led to no demonstration of the practical use of the process, for all of his experimental animals died of tuberculosis. Following this, von Behring, of Marburg, who had for several years been testing various drugs and toxins and suggested remedies for the cure of tuberculosis, hit upon the fact that some animals inoculated with tubercle cultures or tuberculous materials insufficient in virulence or quantity to produce fatal or even extensive disease, appeared thereafter to show heightened resistance to tubercular infection. But von Behring's experiments in this line did not begin until July, 1901, so far as one can learn from his published reports, and none of his experiments is yet terminated, as the animals are still living, and no one knows whether they are tubercular or not. The only animal of this series that von Behring has examined post-mortem was not free from tuberculosis.

The work in this direct line of Pearson and Gilliland began in September, 1900, and their experiments are the *first successful* tuberculosis immunization experiments to be completed and recorded. They have shown by a most striking experiment, fully completed and confirmed by post-mortem examination, that they have discovered a method whereby young cattle may be made highly immune to tuberculosis. The Pennsylvania State Live-stock Sanitary Board has authorized other experiments of a similar nature, and these are now being carried on for the purpose of perfecting and, if possible, of simplifying the technique of vaccination.

We congratulate the veterinary profession of Pennsylvania upon the fact that this epoch-making work has been done by two of their number, and we congratulate the stockmen of Pennsylvania upon the fact that the State is so fortunate as to have a Live-stock Sanitary Board so progressive as to make such investigations possible.

BOASTFULNESS AS AN EVIDENCE OF INNER WEAKNESS.

A REPORTER of our esteemed contemporary, the *American Veterinary Review*, bubbles over with enthusiasm at the powerful veterinary society they now have in the "Empire State," and in the same breath demands that something must be done to enforce the worse than dead-letter law regulating the practice of veterinary science in that Commonwealth.

It condones the acts of members and officers who publicly give expression to views on scientific subjects at variance with the single opinion of the ablest scientists the world over; and its President mourns, in an annual address, that sanitary control work of animal diseases is still in the hands of laymen and ignoramuses in the State that boasts of its strong and powerful society.

Its abject apology for the greatest act of professional and association treachery in the annals of veterinary history adds to its weakness, and places it again in the rôle of the leaders of apologists in our whole country.

Its ever willingness to condone offenses against public welfare and its own common good, which shelters it behind a weak wall of defence in failing to perform its individual duties, only adds to its weakness and leads us to suggest for its thoughtful consideration the words of Robert Burns:

> "Oh wad some power the giftie gie us
> To see oursels as ithers see us."

AN early preliminary poll of the vote of the Executive Committee on the place of meeting of the A. V. M. A. for 1903 strongly favors Ottawa as the place for the convention. This is a splendid tribute to the strong appeal of Dr. Rutherford and a proper recognition of our Canadian representatives.

IT is gratifying to know that in the reorganization of the Cincinnati Veterinary College at Cincinnati, Ohio, the school announces a course of three years of six months' sessions each, and with four veterinarians on the teaching staff, thus conforming to the requirements of the American Veterinary Medical Association.

MARRIAGE.

AT Pittsburg, Pa., Wednesday, October 29, 1902, Miss Clara F. Aull and Dr. J. Stewart Lacock. An uncle of the bride, Rev. Charles B. Mitchell, of Cleveland, Ohio, performed the marriage ceremony. Dinner was served and a large reception given. Dr. Lacock is a graduate of the Veterinary Department, University of Pennsylvania, and is located at Allegheny, Pa., at which place the couple will reside after returning from the wedding-trip of several weeks.

NECROLOGY.

J. R. PETTY, D. V. S., died in Greensboro, N. C., August 15. Dr. Petty was operating on a horse for stringhalt when he was thrown, sustaining injuries from which he died. He was a graduate of the National and Western Veterinary Colleges, and was active in association matters in his own State, and filled acceptably the rôle of Secretary of the North Carolina Veterinary Medical Association.

AMONG THE BOARDS OF EXAMINERS.

PRESIDENT WILLIAM HERBERT LOWE has called a two-days' session of the New Jersey State Board of Veterinary Medical Examiners, to be held at the State House, Trenton, N. J., January 9 and 10, 1903, for the purpose of examining candidates for license to practice veterinary medicine, surgery, and dentistry in that State.

The Pennsylvania State Board of Veterinary Medical Examiners will hold their semi-annual examination in Philadelphia, Pa., the third Monday and Tuesday of December.

Veterinary Surgeon Desmond, of Adelaide, South Australia, continues to do excellent work for the people in that country. His investigations of all reported outbreaks of contagious and infectious diseases among animals, and subsequent valuable reports to the national and local boards of health, are complete, interesting, and educational, and destined to raise veterinary science in public estimation.

A. V. M. A.

The clinics of the Minneapolis meeting awakened serious discussion along certain lines, and some doubts were aroused as to the value of certain operations.

The facilities for demonstration at the Experiment Station at St. Anthony Park were most excellent. Much of the value of these operations is lost by the difficulties attending the lack of knowledge of the after-progress and results of these operations.

Editor Bell, of the *American Veterinary Review*, was an interested spectator of the clinics. The need of more journalistic ammunition to sustain this feature of State or local work in the category of the National Association was the moving cause. Would it not be well for the A. V. M. A. to yearly appropriate a fund of money and send some one comparative surgeon into all the larger cities to give a post-graduate course to all the A. V. M. A. members?

There is a growing demand that in the future our meetings must be held in better arranged halls than are afforded by the hotels where our conventions have their headquarters.

The ride on Lake Minnetonka was a delightful experience, and there was some tripping of the light fantastic to the excellent music that recalled days gone by—times when less serious problems vexed those who now consider the problems of national veterinary sanitary control work.

President Winchester adds his large mite of testimony to the historic saying: "Uneasy lies the head that wears a crown." He was heard to say: "Oh! that I might be saved from being hunted by Wolverines."

All the way from Honolulu comes the announcement that the meeting of 1903 of the A. V. M. A. should be held in New Orleans, La. This looks like a pooling of issues of Members Monsarratt and Dalrymple.

The Dr. G. Ed. Leech poster announcement of the meeting at Minneapolis was in keeping with the enthusiastic nature of that association boomer. While an old Wisconsin graduate, his announcement was signed "One of the Minnesotas." Dr. Ellis, of St. Louis, has engaged Dr. Leech to inflate the boom for St. Louis in 1904.

Dr. J. G. Annand was most assiduous in his attentions to the ladies, and his many kindly courtesies were very highly appreciated.

Dr. W. W. Conkey, of Grand Rapids, Michigan, made a strong impression upon President Winchester, who became sponsor for the Association badge so proudly worn by Dr. Conkey.

AMONG THE COLLEGES.

Kansas City Veterinary College is enjoying a prosperous session with an enrollment of one hundred and thirty-one students. The officers and instructors are making a special effort under these encouraging conditions to give a most thorough course of instruction. With two other colleges in Kansas City this showing of students bespeaks well of the management of this institution, the oldest in Missouri.

The Ontario Veterinary College opened its session Wednesday, October 15, 1902, with a lecture by the Principal, Professor Andrew Smith, F.R.C.V.S. A large class of students, including representatives from various parts of North America, the Pacific coast, the West Indies, as well as from the Dominion of Canada, and some from Great Britain, listened attentively to the lecture. The session presents every indication of being a most successful one.

McGill University Annual Calendar, thirty-seventh session —1902–03—received, in which no special changes are noted.

NOTES.

A Cincinnati, Ohio, paper, in large, black-faced head-lines, records a case of rabies at Washington, Indiana, that occurred twenty-seven years after receiving a dog bite. Such records ought to be most carefully preserved.

The cancer laboratory of the University of Buffalo is very desirous of obtaining from all possible sources live animals, especially the smaller and more manageable ones, with malignant tumors. Rats, dogs, rabbits and fowls are most desired. Such animals may be sent to Dr. H. R. Gaylord, 113 High Street, Buffalo, N. Y. The laboratory will cheerfully pay the expense of transportation. The animals should reach the laboratory alive.

What a single issue of one of the leading magazines of to-day stands for is better conceived by the following facts: The Christmas number of *The Delineator* contains over 230 pages, with 34 full-page illustrations, of which 20 are in two or more colors. The magnitude of this December number, for which 728 tons of paper and 6 tons of ink have been used, may be understood from the fact that 91 presses running fourteen hours a day have been required to print it; the binding alone of the edition of 915,000 copies represents over 20,000,000 sections which had to be gathered individually by human hands.

Christian Science has extended its field to comparative medicine. One case of a Pekin duck that was unable to step received two truth treatments and fully recovered. Wounds, paralysis, and lung fever have all responded to the treatment.

Dr. Duncan McEachran, of Montreal, Canada, on resigning from the post of Veterinary Medical Inspector for Canada, a position he had held acceptably for thirty-six years, was made "Honorary Veterinary Adviser" as an expression of appreciation of the valuable work he had done for the cattle interests of Canada during his administration. Few men could have served public interests so well for so long a period of time and maintained such cordial interests with the cattle-growers and the government as Dr. McEachran.

The publishers of *Success*, in New York, warn all physicians, dentists, and veterinarians against a swindler who is soliciting subscriptions over the country for their paper without authorlty.

Professor James Law announces the completion of his fourth volume on veterinary medicine. This volume completes the series, which has been in preparation for the past two years.

SOCIETY PROCEEDINGS.

THE forthcoming annual meeting of the Veterinary Medical Association of New Jersey will be held at Trenton, on Thursday, January 8, 1903. One of the most interesting and instructive features of this annual meeting will be a stereopticon lecture by Prof. Veranus A. Moore, of Cornell University, on "Etiology and Prevention of Infectious Diseases of Animals." This will be a very useful and valuable lecture for the practising veterinarian to hear. Dr. Harker, of Trenton, Chairman of the Local Committee of Arrangements, President William Herbert Lowe and Secretary George W. Pope are already arranging and perfecting plans for what promises to be a great and successful State meeting.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

THE regular monthly meeting of the Association was held at 169 Paterson Street, Paterson, N. J., on Tuesday evening, October 7, 1902, with Dr. William Herbert Lowe, President, in the Chair.

The following members were present: Drs. William J. Reagan, T. J. Cooper, H. K. Berry, M. A. Pierce, William Herbert Lowe, of Paterson; John Kehoe, J. Payne Lowe, of Passaic; and William J. Fredericks, of Delawanna.

Dr. H. K. Berry was chosen Secretary pro tem.

The minutes of the previous meeting were read and approved.

Treasurer M. A. Pierce reported that he had received $16 from Secretary Machan; had paid the Guardian Printing and Publishing Company's bill of $9.75 for printing, leaving a balance of $6.25. The Treasurer's report was ordered entered upon the minutes.

President Lowe reported that Dr. Brooks had returned from his vacation and had made application for membership The President stated that Dr. Brooks stood for the advancement of the profession in every way, and was proud of the fact that the movement to organize a local society had the unanimous support of the veterinary practitioners of Passaic County. Dr. Brooks received the unanimous vote of all present, and he was declared a member of the Association.

The President reported that he had ordered a bill of the Guardian Printing and Publishing Company of $9.75 paid. This bill was for printing the Constitution, By-laws, and Code of Ethics of the Association.

Under Article IX. of the By-laws the following proposition was presented to the meeting and carried by a unanimous vote:

In view of the earnest and successful efforts of Senator Wood McKee in the halls of the State Legislature at Trenton last winter, which resulted in the enactment of Chapter XVIII., Laws of 1902, "An act to regulate the practice of veterinary medicine, surgery, and dentistry in the State of New Jersey, to license veterinarians, and to punish persons violating the provisions thereof;

Therefore we, members of the Passaic County Veterinary Medical Association, do hereby propose Hon. Wood McKee for honorary membership in this Association.

William Herbert Lowe,
W. J. Reagan,
William J. Fredericks.

President Lowe declared Senator Wood McKee an honorary member.

Dr. Fredericks moved that the President be authorized to have certificates of membership printed; carried.

Moved by Dr. Kehoe, and seconded by Dr. Cooper, that an invitation be extended to the veterinarians of Bergen County to attend our meetings; carried.

The members listened with much interest to the reading of an excellent paper on "Professional Etiquette" by Dr. J. Payne Lowe, of Passaic. Dr. Lowe's paper was received, discussed, and ordered placed on file.

A vote of thanks was extended to the doctor for the care he had exercised in the preparation of his paper.

Dr. Cooper was appointed essayist for the next meeting, his subject being "The Transmission of Disease Through Milk."

The meeting adjourned at 10.45 P.M.

William Herbert Lowe,
President.

H. K. Berry,
Secretary pro tem.

CONNECTICUT VETERINARY MEDICAL ASSOCIATION.

The semi-annual meeting of the Association was held at "Hotel Hartford," in Hartford, Tuesday, August 5, 1902.

The President, Dr. A. Hyde, being absent, the meeting was called to order by Second Vice-President Dr. Harrison Whitney, of New Haven, at 3 o'clock.

Seven of the thirty-nine members responded to roll-call, viz.: Drs. L. B. Judson, of Winsted; P. F. Finnegan, of Hartford; E. C. Ross, of New Haven; C. R. Witte, of New Britain; Harrison Whitney, of New Haven; B. K. Dow, of Willimantic; George H. Parkinson, of Middletown.

Visitors: Drs. G. W. Loveland, of Torrington, and F. F. Bushnell, of Winsted; also reporters of the Hartford *Times* and *Courant.*

The minutes of the last meeting were read and accepted as written.

It was voted to order twenty-five certificates of membership for the Association, and the Secretary was instructed to procure the same.

It was voted to lay Article IV. of the By-Laws on the table until the annual meeting. The report of the Treasurer showed a balance of $24.

Dr. Frederick F. Bushnell, of Winsted, and Dr. G. W. Loveland, of Torrington, offered their names for membership in the Association. Their names were referred to the Board of Censors for action.

The President, Dr. Andrew Hyde, formerly of Norwich, now employed in the United States Bureau of Animal Industry, and located at Sioux City, Iowa, presented his resignation as President of the Association, which was accepted.

It was voted to hold the annual meeting of the Association at "Hotel Hartford," in Hartford, the first Tuesday in February, 1903, at 3 o'clock.

Dr. Ross suggested that the President select three topics for discussion at the next meeting.

The President selected the following subjects: 1. "Canine Distemper." 2. "Azoturia." 3. "Scrotal Hernia."

The matter of papers for the next meeting was left with the Secretary.

After discussing several cases and matters of general interest to the profession, the meeting adjourned. B. K. Dow, V. S.,
Secretary.

AMERICAN VETERINARY MEDICAL ASSOCIATION.

Appeal of Dr. J. G. Rutherford, Chief Veterinary Inspector, for the Convention of 1903 for Ottawa, Canada.

As you are probably aware, an invitation has been extended to the American Veterinary Medical Association to hold its next annual meeting in Ottawa. The idea of having the meeting at the Canadian capital was first introduced by me at the recent gathering in Minneapolis, and has been heartily endorsed not only by the other veterinarians of the city, but by every one else here to whom the matter has been mentioned. The veterinary practitioners at a recent meeting passed the following resolution: "That the Veterinary Practitioners of the City of Ottawa, here assembled, unanimously endorse the invitation extended by Dr. Rutherford to the American Veterinary Medical Association to hold its next annual meeting at Ottawa, and look forward with pleasure to the opportunity which will thus be afforded them of becoming acquainted with the members of that distinguished body and assisting in their entertainment during their visit to the capital of Canada.

The Mayor and Council of the City have forwarded to the Executive a cordial invitation to meet here next year, while the officers of the Department of Agriculture are also prepared to do their share in entertaining the members of the Association. Mr. Edwards, M. P., has expressed a desire that the Association should accept his hospitality for one day by going down the river twenty-four miles to Rockland and inspecting his magnificent herd of Shorthorns, which, for a number of years has been conducted on the "Bang" system, under the supervision of one of our veterinary officers. Another afternoon can be pleasantly and profitably spent at the Central Experimental Farm just outside the city.

There are numerous other attractions, such as the Parliament building, the Chaudiere Falls, the parks at Aylmer, Britannia, and Rockcliffe, etc., which ought to make the visit interesting and agreeable, not only to the the members, but to the ladies accompanying them.

Apart from all these, however, I may say that I am convinced that great good, not only to the Association but to the profession generally, and especially to Canadian practitioners, will result from the holding of this meeting in Ottawa. The influx of such a large body of intelligent, highly trained, and up-to-date veterinarians cannot fail to arouse widespread and most beneficial interest among the members of the profession throughout the Dominion.

That some such awakening is needed there can be no question, and it seems to me that the present is an opportunity which should, on no account, be neglected. I am satisfied, also, that the membership of the Association will be largely increased by the affiliation of many Canadian veterinarians who have hitherto looked upon the American Veterinary Medical Association as a foreign body, and not what it really is, an organization having for its sole object the development and general betterment of the veterinary profession on the North American Continent, regardless of international boundaries or political relations.

In view of all these facts, might I ask of you to use your influence with the members of the Executive in favor of the selection of Ottawa as the next place of meeting? You will all be warmly welcomed.

A. V. M. A. RESIDENT STATE SECRETARIES, 1902-1903.

Alabama: L. Van Es, Mobile.
Arizona and New Mexico: J. C. Norton, Phœnix.
Arkansas: R. R. Dinwiddie, Fayetteville.
British Columbia: Johnson Gibbins, 1003 Granville St., Vancouver.
California: J. J. Summerfield, Santa Rosa.
Colorado and Utah: Thomas Castor, box 525, Trinidad.
Connecticut: Thomas Bland, Waterbury.
Delaware: H. P. Eves, 507 W. Ninth St., Wilmington.
District of Columbia: A. M. Farrington, 1436 Chapin St., Washington.
Florida: J. G. Hill, 324 Forsyth St., Jacksonville.
Hawaiian Islands: W. T. Monsarrat, Honolulu.
Illinois: E. L. Quitman, 489 Jackson Blvd., Chicago.
Indiana: J. R. Mitchell, Evansville.
Iowa: Hal C. Simpson, Denison.
Kansas: N. S. Mayo, Manhattan.
Kentucky: D. A. Piatt, Lexington.
Louisiana: E. Pegram Flower, Baton Rouge.
Manitoba: W. J. Hinman, Winnipeg.
Maryland: L. A. Nolan, Dillon and Fifth Sts., Baltimore.
Massachusetts: Benj. D. Pierce, 27 Sanford St., Springfield.
Michigan: G. W. Dunphy, Quincy.
Minnesota: J. G. Annand, 414 First Ave., S. E., Minneapolis.
Mississippi: J. C. Robert, Agricultural College.
Missouri: T. B. Pote, 4046 Cottage Ave., St. Louis.
Montana: M. E. Knowles, Helena.
Nebraska: H. Jensen, Weeping Water.
New Hampshire and Maine: Lemuel Pope, Jr., 101 State St., Portsmouth.
New Jersey: T. E. Smith, 309 Barrow St., Jersey City.
New York: Wm. Henry Kelly, 233 Western Ave., Albany.
Nevada and Idaho: J. Otis Jacobs, Reno.
North Carolina: A. S. Wheeler, Biltmore.
North and South Dakota: W. F. Crewe, Devil's Lake.
Nova Scotia: Wm. Jakeman, Halifax.

Ohio: A. S. Cooley, 1184 E. Madison Ave., Cleveland.
Ontario: John W. Groves, Hamilton.
Oregon: Wm. McLean, 328 Fourth St., Portland.
Pennsylvania: C. J. Marshall, 2004 Pine St., Philadelphia.
Quebec: Chas. H. Higgins, Department of Agriculture, Ottawa.
Rhode Island: Thos. E. Robinson, 65 Main St., Westerly.
South Carolina and Georgia: G. E. Nesom, Clemson College.
Tennessee: W. C. Rayen, Nashville.
Texas: M. Francis, College Station.
Washington: Clarence Loveberry, per Frye-Bruhn Co., Seattle.
West Virginia: F. P. Ruhl, Fairmont.
Wisconsin: J. T. Hernsheim, Market and Exchange Sts., Kenosha.

PERSONALS.

Dr. Leonard Pearson, State Veterinarian, was the judge of cattle, and Dr. C. J. Marshall, of Philadelphia, the judge of horses, at the Oxford (Chester County) Fair in September. The single judging system was inaugurated at the Fair this year.

The *Gleaner*, a journal published by the National Farm School, reproduces in the October number an excellent photogravure of Dr. W. G. Benner, of Doylestown, Pa., one of the corps of instructors at that institution.

Dr. J. C. McNeil and his assistant, Dr. H. H. Myers, of Pittsburg, Pa., were on the rack in October before the Committee on Revisions of Salaries of the various departments of the city of Pittsburg, Pa.

Dr. John T. Claris, of Buffalo, N. Y., was the defeated candidate for sheriff on the Republican ticket of Erie County in the recent election. Dr. Claris was an active Democrat in the Cleveland administrations.

Dr. A. T. Sellers, of Camden, N. J., has added a boarding stable with hospital facilities in connection with his practice.

BINDING OF THE JOURNAL.

THOSE contemplating binding their JOURNALS for the year 1902 in the half-sheep form adopted by the JOURNAL may now arrange for the same by writing to the office of this publication. We will bind in this form any number of volumes, and will endeavor to supply missing numbers at current rates wherever the same is possible. All orders must reach us not later than January 20, 1903. Send JOURNALS by express, prepaid.

THE JOURNAL

OF

COMPARATIVE MEDICINE AND

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VOL. XXIII. *DECEMBER, 1902.* No. 12.

THE FAILURE OF THYMOL TO EXPEL WHIPWORMS (TRICHURIS DEPRESSIUSCULA) FROM DOGS.

BY CH. WARDELL STILES, PH.D.,[1]
ZOÖLOGIST OF BUREAU OF ANIMAL INDUSTRY.,

AND

CHARLES A. PFENDER,
STUDENT ASSISTANT.

IN a series of experiments in the Zoological Laboratory of the Bureau of Animal Industry, doses of thymol varying from 10 to 80 grains (0.648 to 5.18 grammes) each were administered to eighteen dogs weighing from 8 to 35 pounds each, in order to test its efficacy in expelling whipworms (*Trichuris depressiuscula*). From the poor results obtained it must be concluded that this drug is very unsatisfactory in treating whipworm infections; in fact, that in safe doses it is practically useless. In several cases maw-worms (*Ascaris canis*) were passed, but in no case were all the specimens expelled. The drug had no effect on the double-pored tapeworms (*Dipylidium caninum*).

The best results were obtained by administering the drug in powdered form with castor oil. Thymol tablets were unsatisfactory, and thymol dissolved in alcohol, as advised by Theobald, is likely to be followed by serious convulsions, even by death ; hence alcoholic solutions of the drug should be avoided. Theobald reports a case of partial prostration in a bull terrier from a dose of 3 grains (0.194 gramme) ; unfavorable symptoms developed in our dogs after 30 grains (1.94 grammes) in alcohol. In one case a dose of 20 grains (1.296 grammes) of thymol, administered in milk to a dog weighing 12 pounds, was followed by attempts to vomit. In the other cases, however, doses of 10 to 30 grains (0.648 to 1.94 grammes) of powdered thymol were administered to dogs weighing 8 to 15 pounds, and a dose of 75 grains (4.86 grammes) of powdered thymol was administered to a dog weighing 35 pounds without producing any unfavorable symptoms. Theobald's statement, therefore, that the dose for roundworms in dogs should not exceed 2 grains (0.129 gramme) does not apply to *powdered* thymol. Doses of 50 and 100 grains (3.24 to 6.48 grammes) of thymol in tablet form, and not followed by castor oil, administered to two dogs weighing 12 and 15 pounds, respectively, expelled all the whipworms (*Trichuris*), but made one dog slightly sick and the other dog very sick.

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[1] Transferred August 16, 1902, to Public Health and Marine Hospital Service as Chief of Division of Zoölogy, Hygienic Laboratory.

Thymol is one of the drugs which is most highly and most frequently recommended in uncinariasis (ankylostomiasis), and occasionally it is advised in cases of infection with whipworms (*Trichuris*), with maw-worms (*Ascaris*), with pinworms (*Oxyuris*), and with palisade-worms (*Strongylus*). Its use in human medicine in uncinariasis is common, and some authors warn against giving alcohol to a patient during the time that thymol is in his intestine. Theobald especially has recommended its use in horses, claiming that it acts not only upon the worms which are free in the horse's intestine, but also upon the worms in the mucosa. He directly advises the use of an alcoholic solution of the drug. Bozzolo (1881–82) and Sandwith (1894) advise that brandy be given after thymol in human practice.

Stiles (1901) used it in Texas in tablet form, powdered form, and alcoholic solution, experimenting with cattle, sheep, and goats.

The doses recommended by various authors for different animals may be seen from the following:

Man (*Homo sapiens*): It is usually advised that as an anthelmintic two doses of 2 grammes (31 grains) each be given two hours apart.

Bozzolo (1881-82) used as high as 10 grammes (154.32 grains) in a single day, giving the drug in five doses of 2 grammes (31 grains) each, and following the last dose with brandy.

Britto (1885) gave 6 grammes (92.6 grains) in a single day, administering the drug in three doses of 2 grammes (31 grains) each.

Graziadei (1882) used 12 grammes (185.18 grains) in a single day, administering six doses of 2 grammes (31 grains) each at intervals of two hours.

Campi (1886) used 8 grammes (123.45 grains) in a single day, giving the drug in twelve doses. He first gave 20 c.c. (5.41 drachms) of castor oil, then administered the drug every fifteen minutes. He followed the last dose with another administration of 20 c.c. (5.41 drachms) of castor oil. He also advises the use of rum or cognac during the treatment.[1]

Horse (*Equus caballus*): Theobald (1900, pp. 65, 66) administered 15 grains (0.972 gramme) to adults and 10 grains (0.648 gramme) to foals. He states that as much as 3 drachms (11.66 grammes) have been given to horses without serious effect.

Cattle (*Bos taurus*): Stiles (1901, p. 372) has given 240 grains (15.54 grammes) to a cow.

Sheep (*Ovis aries*) and goats (*Capra hircus*): Stiles (1901, p. 372) gave 32 to 60 grains (2.10 to 3.88 grammes), and later as high as 80 to 100 grains (5.18 to 6.48 grammes).

Dogs (*Canis familiaris*): Theobald (1898, p. 24) advises 2 grains (0.130 gramme) at the most, and states that 3 grains (0.194 gramme) have caused prostration. For our doses, see below.

Cats (*Felis domestica*): Theobald (1898, p. 24) advises 2 grains (0.130 gramme).

Fowls (*Gallus domesticus*): Theobald (1898, p. 24) advises 1 grain (0.065 gramme) for the expulsion of roundworms.

As stated above, we were recently led to try thymol on some dogs, in order to test its value when administered for the expulsion of whipworms (*Trichuris*); and although only eighteen experiments have thus far been made, it is believed that a short account of the results will be justified, and also that it will be of interest in connection with the subject of uncinariasis.

The dogs were obtained from the pound. Several days after being treated with thymol they were killed and examined for intestinal parasites, in order to see the efficacy of the doses administered. The animals weighed from 8 to 35 pounds and ranged from about one to ten years old.

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[1] Captain Fearnside, I. M. S., at the meeting of the British Medical Association at Ipswich, in 1900, gave a statistical table showing that he found the ova of *Uncinaria duodenalis* in convicts treated with thymol (20 grains [1.296 grammes] daily) over periods extending from ten to thirty days, just as numerous at the end of the treatment as at the beginning. It will be noted that the daily doses were only 20 or 30 grains [1.296 to 1.94 grammes]; also that the longest period of treatment was thirty days. Those who have had a large experience with this disease will not, therefore, accept such a table as proof either of the failure of thymol to effect a cure or as in any way upsetting the diagnosis of ankylostomiasis [uncinariasis].

On the other hand, most text-books appear to imply that it is only necessary to give a few (three or four) hourly doses of 20 to 30 grains of thymol, and possibly to repeat this treatment in another week or so, to effect a complete cure.

Ozzard says that he is prepared to state that in any case of ankylostomiasis [uncinariasis] ova of the *Uncinaria duodenalis* will always be found to be present after the first course, and in many cases even after the second or third courses of such treatment (Ozzard, A.T., 1902).

Attempts to give the drug in the regular food, such as milk and meat, were unsuccessful, since the dogs discovered even as low an amount as ½ grain (0.0324 gramme) in a saucer of milk, and refused to drink it. Administration was then practised as follows:

(*a*) In tablet form (10 grains each), thrown back on the tongue.

(*b*) In tablet form, together with castor oil.

(*c*) In powdered form in milk, administered by tube.

(*d*) In alcoholic solution, diluted with milk or water, administered by tube.

These experiments were made during the winter months (November, December, January) of 1901–1902 (excepting Dogs Nos. 17 and 18, which were treated in June, 1902), and the following parasitic worms were found post-mortem in the dogs examined:

Name of parasite.	Present in.	Absent from.
Double-pored tapeworm (*Dipylidium caninum*) . .	6 dogs.	12 dogs.
Maw-worms (*Ascaris canis*)	3 "	15 "
Whipworms (*Trichuris depressiuscula*)	15 "	3 "
Hookworms (*Uncinaria canina*)	1 "	17 "

The number of dogs examined is too small to permit of any extensive generalization; but it is rather striking that after the treatment 83.33 per cent. showed infection with whipworms, 33.33 per cent. contained double-pored tapeworms, while 16.6 per cent. contained maw-worms, and only one case of infection with the hookworms was found. (This was in Dog No. 17, examined in June, 1902.) Considering the fact that hookworms are usually so common in dogs in the District of Columbia in the summer, we were hardly prepared not to find a single case of infection in the sixteen dogs examined in winter.

The experiments in detail were as follows:

Dog No. 1. Weight, 15 pounds. Received ten tablets, 10 grains each, of thymol; total, 100 grains (6.48 grammes). About four hours after receiving the drug the dog's temperature fell from 100° F. to 97° F., this low temperature continuing for about ten hours. Retching and vomiting set in, lasting about one hour. None of the tablets was found in the vomit. During this period the dog was apparently not suffering any serious pain. The fecal discharge the next day was normal, and contained several live whipworms (*Trichuris depressiuscula*). From now on the dog refused food, and had no further discharge from the bowels. Symptoms developed which indicated congestion of the intestine, and the animal died about eighty-four hours after dosing, just as we had determined to kill him.

Autopsy showed a highly congested condition of the stomach and small intestine. No worms were found.

DOG No. 2. Weight, about 12 pounds. Received 50 grains (3.24 grammes) of thymol in tablet form. Six hours after dosing the dog made several attempts to vomit, but there were no other signs of pain. The feces on the following morning contained a few live whipworms (*Trichuris depressiuscula*). The dog showed no signs of pain, but was killed about forty-eight hours after dosing. No lesions were found which could be attributed to the drug, while the cæcum contained large numbers of live whipworms (*Trichuris depressiuscula*).

DOG No. 3. Weight, about 12 pounds. Received 10 grains (0.648 gramme) of thymol in tablet form and 2 drachms (7.77 c.c.) of castor oil. No effect. Forty-eight hours later received 30 grains (1.94 grammes) of thymol in tablet form and 2 drachms (7.77 c.c.) of castor oil. Attempts to vomit about three hours later. No worms in the feces after this dose. Killed several days later, and a number of live whipworms (*Trichuris depressiuscula*) were found in the cæcum.

DOG No. 4. Weight, not over 15 pounds. Received 10 grains (0.648 gramme) of thymol in tablet form and 2 drachms (7.77 c.c.) of castor oil. No effect. Forty-eight hours later received 20 grains (1.296 grammes) of thymol in tablet form and 4 drachms (15.55 c.c.) of castor oil. No worms were passed. Killed twenty-four hours later, and cæcum found heavily infected with live whipworms (*Trichuris depressiuscula*).

DOG No. 5. Weight, not over 15 pounds. Received 20 grains (1.296 grammes) of thymol in tablet form and 4 drachms (15.55 c.c.) of castor oil. No worms discharged. Killed forty-eight hours after dosing, and a number of live whipworms (*Trichuris depressiuscula*) were found in the cæcum.

DOG No. 6. Same as No. 5. Same result.

DOG No. 7. Weight, 12 pounds. Received 20 grains (1.296 grammes) of powdered thymol in milk. Shortly afterward frequent attempts to vomit. Forty-eight hours later same size dose repeated. No worms in the droppings. Forty-eight hours later same size dose repeated. No worms in the droppings. Dog was killed about one hundred and twenty hours after the first dose, and several live whipworms were found loose in the intestine.

DOG No. 8. Weight, not over 15 pounds. Received 20 grains (1.296 grammes) of powdered thymol in milk. Forty-eight hours later same size dose repeated; again, forty-eight hours later, same size dose, with 4 drachms (15.55 c.c) of castor oil. Shortly after the third dose slight convulsions were noticed, lasting several hours and followed by great depression. At no time during the treatment were worms found in the droppings. Forty-eight hours after the third dose the animal was killed. Numerous live whipworms (*Trichuris depressiuscula*) were found in the cæcum.

DOG No. 9. Weight, not over 15 pounds. Received 20 grains (1.296 gramme) of powdered thymol. Forty-eight hours later the dose was repeated, but no worms were expelled. After another forty-eight hours the dose was again repeated, with the addition of 2 drachms (7.77 c.c.) of castor oil; still no worms were expelled. The animal was killed twenty-four hours later, and the cæcum was found very heavily infected with live whipworms (*Trichuris depressiuscula*).

DOG No. 10. Weight, not over 15 pounds. Received 10 grains (0.648 gramme) of powdered thymol. Killed three days later. Live whipworms (*Trichuris depressiuscula*) were found in the cæcum, and several live specimens of the double-pored tapeworm (*Dipylidium caninum*) were found in the small intestine.

DOG No. 11. Same data as Dog No. 10, except that no tapeworms were present.

DOG No. 12. Weight, 15 pounds. Received 10 grains (0.648 gramme) of powdered thymol and 2 drachms (7.77 c.c.) of castor oil. Two maw-worms (*Ascaris canis*) were expelled several hours after the administration of the drugs. The dog was killed twenty-four hours later, and several live maw-worms (*Ascaris canis*) and tapeworms (*Dipylidium caninum*) were present.

DOG No. 13. Weight, not over 15 pounds. Received 10 grains (0.648 gramme) of powdered thymol and 2 drachms (7.77 c.c.) of castor oil. The fecal discharge six hours later contained several maw-worms (*Ascaris canis*). Four days later 20 grains (1.296 gramme) of powdered thymol were given, but no worms were passed. Ten days after the second dose the dog received 30 grains (1.94 grammes) of thymol in alcohol. About an hour later convulsions set in, lasting for six hours. No worms were expelled. The next day the dog was killed, and several live maw-worms (*Ascaris canis*), together with quite a heavy infection of live tapeworms (*Dipylidium caninum*), were found.

Dog No. 14. Weight, 14 pounds. Received 30 grains (1.94 grammes) of thymol in alcohol. Intense convulsions developed within a few minutes and lasted several hours. No worms were passed. The dog was killed four days later, and the cæcum was found infested with live whipworms (*Trichuris depressiuscula*), and the small intestine contained several tapeworms (*Dipylidium caninum*).

Dog No. 15. Weight, 35 pounds. Received 75 grains (4.86 grammes) of thymol in tablet form. No inconvenience whatever was observed; no worms were discharged. Forty-eight hours later the dog received 75 grains (4.86 grammes) of thymol dissolved in alcohol; no results. Ninety-six hours after the second dose the dog received 80 grains (5.18 grammes) of thymol in powdered form; no results. Upon killing this dog two days later several specimens of live maw-worms (*Ascaris canis*) were found. There was a slight congestion of the abdominal cavity, but otherwise nothing abnormal was noticed, despite the large doses which had been given.

Dog No. 16. Weight, 8 pounds. Received 30 grains (1.94 grammes) of thymol in tablet form. No results. Two days later 30 grains (1.94 grammes) of thymol were administered in alcohol. No results. Four days later 40 grains (2.59 grammes) of powdered thymol were administered. No results. The dog was killed the next day, and several live whipworms (*Trichuris depressiuscula*) were found in the cæcum.

Dog No. 17. Weight, about 15 pounds. Received 20 grains (1.296 grammes) of thymol in tablet form daily for five days in succession. A microscopic fecal examination showed infection with whipworms (*Trichuris depressiuscula*) and hookworms (*Uncinaria canina*). The administration of thymol in daily doses of 20 grains (1.296 grammes) was continued after one day's intermission. On the seventh day following the microscopic examination of the feces there appeared a slight diarrhœa, which, however, soon subsided, leaving the animal in apparently good health. Two days later the daily doses were recommenced, and were continued for six days without producing any serious symptoms. The dog was killed after having received 20 grains (1.296 grammes) of thymol daily for sixteen days in succession, excepting the intermissions mentioned. Several live maw-worms (*Ascaris canis*), together with several hookworms (*Uncinaria canina*), were found in the intestine, while the cæcum showed quite a heavy infection of whipworms (*Trichuris depressiuscula*).

Dog No. 18. Weight, 17 pounds. Received 20 grains (1.296 grammes) of thymol in tablet form for twenty consecutive days, Sundays excepted. Fecal examination at various times showed an occasional discharge of maw-worms (*Ascaris canis*). On the sixteenth day of the treatment the dog became very sick, being taken with violent fits of trembling, and vomiting the medicine which had been administered a few hours prior to his first attack. He recovered the following day, and at no time afterward presented any marked indisposition.

He was killed twenty days after receiving the last dose. The walls of the cæcum were found literally covered with whipworms (*Trichuris depressiuscula*), and several tapeworms (*Dipylidium caninum*) were present in the intestine.

A TUMOR-LIKE LESION IN THE LUNG OF A HORSE CAUSED BY A BLASTOMYCES (TORULA).*

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The literature of blastomycetic infection has been so thoroughly quoted by recent writers, especially Ricketts[1] and Nichols,[2] that I refer those interested to these authors, and will mention only two works here, since they deal especially with blastomycetic lesions in animals.

Fermi and Aruch[3] describe a pseudoglanders in the horse known as *Linfangite epizootica*, *Farcin de rivière*, or *Farcin d'Afrique*. The disease closely resembles glanders and farcy, with the exception that the lungs are practically never involved. From the lesions a blastomyces was obtained, which grew readily upon potato, the colonies at the end of three days being elevated and dirty white, with a smooth, non-glistening surface. On agar, gelatin, etc., there was an exceedingly scanty growth. Horses, rabbits, and guinea-pigs were inoculated with this organism, with negative results, unless we except rabbits, which were inoculated in the testicle with pure cultures, after they had received an injection of ten cubic centimetres of 1 per cent. lactic acid and 30 per cent. grape sugar, three times a week for three weeks; after inoculation they again received injections of the above solution for two weeks longer, and showed suppuration in the testicle and between the abdominal muscles. An unsatisfactory illustration of the specific organism leaves its classification in doubt.

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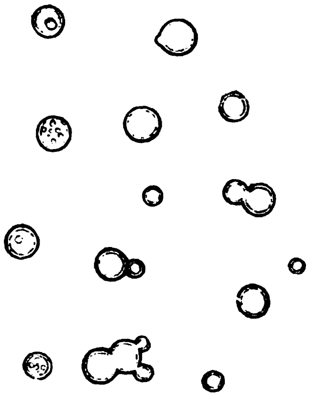
* This article could not be completed in time to appear in "The Second Annual Report of the Cancer Committee to the Surgical Department of the Harvard Medical School." Read, March 29, 1902, at the Second Annual Meeting of the American Association of Pathologists and Bacteriologists, at Cleveland, Ohio.

Tokishige[4] describes a pseudoglanders occurring in horses and cattle in Japan, which, he says, is identical with *Lymphangitis epizootica.* The skin lesions are the more common, and are sharply defined nodules from a pea to a walnut in size, which may remain hard, but usually suppurate and ulcerate. The lymph nodes near infected regions are generally involved. There seems to be a predilection for the testicle, where the process begins on the scrotum and prepuce, extending thence to the organ itself. The focus in the testicle is defined and resembles a tumor. Glanders-like lesions are often seen upon the nasal mucous membrane, and may extend from here to the pharynx, larynx, and trachea; they are seldom seen in the larger bronchi and never in the small, yet the lungs may rarely be involved. (The lung lesions are not described.) In all diseased parts Tokishige found blastomycetes either free or in leucocytes (from his plates I should question the character of the including cells). He obtained pure cultures of this organism upon different media. The growth upon agar was hardly visible before thirty days, and after forty to fifty days the colonies were one to four millimetres in diameter, white and compact; it was difficult to remove a small portion with the needle and to crush it under the cover-glass. In gelatin, colonies appeared after fifty-six days. Upon potato the growth was more rapid and of a light brown color (the time is not mentioned). Tokishige made many inoculation experiments, using a number of guinea-pigs, rabbits, dogs, cats, calves, horses, and swine. Pure cultures were used in some of these experiments, and in others direct inoculation from diseased portions, such as the contents of ulcers, nasal secretions, and portions of nodules from the testicle, was attempted. Inoculations were made in a variety of ways and feeding experiments were included, but the results were negative. His illustrations show that the organism which he isolated forms a mycelium.

GROSS LESION. The lesion which prompts this communication and the organism causing it to differ essentially from those just described, and, as far as I have examined the literature, nothing analogous has been recorded. This supposed tumor was situated in the posterior portion of the caudal lobe of the right lung of a horse, and was about as large again as the human head. A cut made through this large nodule showed its central portion to consist of a fairly firm gelatinous mass of a delicate pinkish-yellow color in its living portions, and containing large and small areas of necrosis. It so closely resembled a myxosarcoma that several pathologists unhesitatingly made this macroscopic diagnosis. This central portion was here and there loosely attached to a dense connective tissue wall, in other places separated from it—sequestrum-like—by a thick, yellowish, and sometimes reddish mucoid material not unlike sputum. Removal of the central mass left a cavity, to the wall of which still adhered portions of the central part of the growth. This wall consisted of dense connective tissue varying in thickness from six to less than one centimetre. Posteriorily this thick capsule gradually gave way to more or less normal lung tissue, in which small white foci were distinctly visible, and which resembled miliary tubercles or areas of chronic bronchopneumonia. (Microscopic examination of these foci gave the typical picture of chronic bronchopneumonia ; no blastomycetes were associated with the process.) In the thick wall of the lesion were a number of openings, the largest about four centimetres in diameter, which contained more or less of the sputum-like material above referred to. These communicated with each other and probably with the lung beyond, and it is assumed that they were dilated bronchi, though the specimen was so mutilated when it reached me that its true relationships could not be studied That they undoubtedly were connected with the bronchi is borne out by the clinical history of the animal ; for a year before he was killed an ever-increasing discharge from the nostrils was observed, particularly diffuse during exercise. For this reason he was suspected of having glanders, and twice, a few months previous to his death, guinea-pigs were inoculated in the usual manner for diagnosing glanders, the swab having been taken from this horse's nose. Both tests resulted in the death of the guinea-pigs from peritonitis. Whether there were metastases in the kidneys or other organs of this horse is unknown, as only the lungs were examined by the person making the autopsy.

HISTOLOGY. A microscopic examination of the central or myxomatous-like portion of the lesion showed it to consist of delicate trabeculæ of connective tissue which formed a network, in the meshes of which was a varying number of cells, some probably endothelial, others connective tissue cells, and a great number of blastomycetes. In some parts the cells were quite numerous, in others almost entirely lacking, and here also the connective tissue threads were scarce, leaving a picture of quantities of blastomycetes embedded in a homogeneous, gelatinous mass. Such a mass always surrounds the blastomycetes; sometimes it is not plentiful and difficult to perceive, again particularly prominent and often wrinkled or puckered, perhaps due to contraction caused by the hardening reagents. In the more cellular parts of the lesion numerous giant cells were present. These cells varied much in size, and were often phagocytic, sometimes containing several blastomycetes. The blastomycetes varied much in size and were surrounded by a definite membrane, often showing a double contour. Within some of the blastomycetes numerous small granules of fat were often seen; others contained only one larger or smaller granule. In numerous sections made through different portions of the lesions, the above histological appearances were constant.



Blastomycetic lung lesion. (Horse.) Various forms of torulæ from pure potato culture.

CULTURES. From the lesion, pure cultures of a blastomyces were obtained upon potato, and from this transfers were made to a variety of media. Gelatin plates showed white, pin-head colonies in five to seven days, which never increased much in size as time elapsed. The surface colonies were distinctly elevated. The growth on serum and agar is white and quite marked after forty-eight hours at 37° C., but ceases to develop very much thereafter, whether kept at 37° C. or at the room temperature. The best development occurs upon potato at 25° C., and the growth continues at this temperature or at that of the room, only limited in extent by the general laws surrounding the increase of organisms in cultures. On this medium the growth is at first white, soon becoming a dirty gray, and after a few days gradually taking on a chocolate-brown color. In old cultures the growth upon the less nutritive portions of the medium becomes white and dry and resembles lime deposits. The color varies quite widely, sometimes remaining a lighter or darker yellow, again assuming the deep brown color almost at once. Such variations are the rule with many forms of torulæ.

A MICROSCOPIC EXAMINATION OF PURE CULTURES shows round organisms sometimes slightly oval which vary very much in size. The young forms are surrounded by a delicate membrane which in older forms become much thicker. The blastomycetes are sometimes surrounded by a gelatinous covering (network[5]). Fat granules are common within the cells, one or two drops may be present, or numerous small granules. Vacuoles are also observed.

Thanks to Dr. Weis, this organism was studied, as far as time would permit, by approved methods,[6] with the following results:

FERMENTATION TESTS. Observations were made for ten weeks at different temperatures, viz., 20° to 24° C., 24° to 37° C., and 38° to 40° C., with the result that there was no fermentation in dextrose yeast water, lactose yeast water, saccharose yeast water, and wort.

SPORE FORMATION. Observations upon spore formation extended over twelve weeks, with the result that no spores were formed on gypsum blocks at the following temperatures: 19° to 24° C., 24° to 27° C., 29° to 37° C., 30° to 40° C.

Besides these important facts which throw this organism into the class Torula, the following were noted:

In wort gelatin there was an extensive and ever-increasing surface growth which sank with the gradual liquefaction of the medium.

Wort is the best medium for growth.

The organism is facultative anaërobic.

No mycelia were observed.

There were many "resting cells."

This torula resembles in many ways the two torulæ of Sanfelice and those of Klein and Plimmer, which have been so carefully compared by Weis.[5] Whether an identity can be established between this organism and the four just mentioned, further study must determine.

INOCULATIONS. A few rabbits and guinea-pigs were inoculated, some by the direct method with material obtained from the lesion in the horse, others with pure cultures of the torula.

INOCULATIONS BY THE DIRECT METHOD.

Rabbit 1. A bit of the myxosarcomatous portion of the lesion was ground up with sterile water, and the suspension thus obtained was injected into the rabbit, one-half cubic centimetre being placed beneath the skin of the abdomen and one cubic centimetre introduced into the ear vein. The animal died fourteen days later. Autopsy. There was no subcutaneous lesion. Both lungs were affected with pneumonia, with some abscess formation. Smears from the thick, white contents of the bronchi showed no blastomycetes. The other organs were normal. A microscopic examination of the lungs showed a more or less chronic pneumonia and a few scattered blastomycetes. It is probable that these organisms prepared the way for a secondary infection.

Guinea-pig 1. The same suspension used as for Rabbit 1 ; one cubic centimetre was injected into the peritoneal cavity, and one-quarter cubic centimetre into the subcutaneous tissue of the abdomen. A few days after inoculation a very marked subcutaneous swelling extended over most of the belly. This gradually decreased in size, leaving only a small local enlargement where the needle entered. This animal was killed twenty-eight days after inoculation. Autopsy : In the subcutaneous tissue at the point of inoculation was a firm, irregular, double pea-sized mass, consisting of several translucent, gray nodules. There was a small pea-sized enlargement of an inguinal lymph node near the seat of inoculation, and an inguinal lymph node on the opposite side of the body was slightly enlarged. On the parietal peritoneum opposite the point of injection was a group of about twenty isolated, pin-head, firm, grayish foci, having upon close examination a very delicate honey-combed structure. All other organs were macroscopically normal.

INOCULATIONS WITH PURE CULTURES.

The material used for the following inoculations was prepared by adding a small amount of the original potato culture fourteen days old to sterile water and thoroughly mixing, so that the water became slightly cloudy.

Rabbit 2. One cubic centimetre of the above fluid was injected into the peritoneal cavity, and one-half cubic centimetre into the right testis. The animal died four days later of peritonitis. No blastomycetes could be found in the cloudy fluid contained in the abdominal cavity, but a potato culture made from this developed three colonies of blastomycetes. The testis was greatly swollen and hemorrhagic.

Guinea-pig 2. One cubic centimetre was injected into the peritoneal cavity and one-half cubic centimetre into the tissue of the right mamma. Two days later there was a swelling the size of a horse-chestnut in the right inguinal region. This gradually decreased in size as time passed, and in several places small openings appeared in the skin over the nodule from which there was, especially upon pressure, a yellowish, gelatinous discharge, containing leucocytes and numerous blastomycetes. The animal was killed fifteen days after inoculation. Autopsy: Occupying the position of the right mamma was a nodule the size of a nut. It was loosely attached to the abdominal muscles by a caseous mass. (Smears from this showed no blastomycetes, but a potato culture from the same developed several colonies.) The rest of the nodule was myxomatous in character and inclosed an enlarged lymph node. The nodule was surrounded by a decidedly thick connective tissue capsule. The internal organs were normal.

The following animals were inoculated with the original potato culture one month old mixed with water as in the previous experiments:

Rabbit 4. Twenty minims were injected into the abdominal cavity, and five minims into the tissue of the right testicle. The animal was killed ten days after inoculation. Autopsy: A slight amount of clear, light-red serum was present in the peritoneal cavity. Cultures from this remained sterile. The right testicle had doubled in size and was immovable in the scrotum. On section there was much œdema of the scrotum, and the gland was very dark red in color. Cultures were made from this organ, resulting in numerous colonies of blastomycetes. The internal organs were normal.

Rabbit 3. This animal received twenty-five minims in the subcutaneous tissue of the abdomen and five minims in the right testis. It died eleven days after inoculation. Autopsy: The inguinal lymph nodes near the seat of inoculation were very much enlarged and decidedly hemorrhagic. The right testicle was much increased in size, but not as large as the testicle of Rabbit 4. There was also less œdema of the scrotum and very slight injection of the gland. Peritonitis was very marked, the peritoneal cavity being filled with a cloudy, flocculent, and slightly reddish fluid ; in places there were layers of fibrin. Potato cultures from this fluid remained sterile.

Guinea-pig 4. This animal received twenty-five minims in the abdominal cavity and five minims in the right mamma. It died thirty-three days later. Autopsy: In the inguinal region were two distinct nodules, not attached to each other and not adherent to the abdominal muscles. The more anterior nodule was three and one-half centimetres long and two centimetres in diameter, and consisted of a reddish-yellow, translucent, jelly-like mass without macroscopic evidence of any connective tissue capsule. The other nodule was five centimetres long and from one to two centimetres in diameter, and was less jelly-like in appearance. Smears were positive, and cultures gave a profuse growth of blastomycetes. The inguinal lymph nodes on the opposite side were enlarged and showed macroscopic evidence of blastomycetic invasion. On the peritoneum toward the median line were small, isolated, translucent foci which became more numerous superiorly, soon coalescing and forming a thick, yellowish to light red, smooth, jelly-like layer upon the peritoneum, its greatest thickness being one and one-quarter centimetres. On the omentum was a yellowish-red mass of jelly seven and one-half centimetres long, and from one to four centimetres in thickness. This was more or less rough and nodulated, and in two places so deeply furrowed as to give the lesion the appearance of consisting of three distinct nodules. From this main lesion and following the line of vessels there ran out upon the omentum several strands of reddish-yellow jelly about nine centimetres long and one-half to one centimetre wide. In another portion of the omentum were isolated, translucent, jelly-like foci varying in size from a pin's head to a small pea. Cultures from the omental lesion gave an extensive growth of blastomycetes. Here and there in the mesentery were a few isolated pin-head foci, typical of blastomycetic infection. The mesenteric glands were not involved. The other organs showed no macroscopic lesions, and microscopically the kidneys were free from blastomycetes.

Guinea-pig 3. Inoculated with twenty-five minims in the abdominal cavity and with five minims in the right mamma. The usual subcutaneous swelling occurred in a few days, growing very large, rupturing the skin in several places, and discharging quantities of purulent, translucent, gelatinous material filled with blastomycetes. At the time of death the nodule was somewhat smaller than it had been some weeks previously. The animal died forty-eight days after inoculation. Autopsy: The subcutaneous lesions, including changes in the lymph nodes, were quite similar to those found in guinea-pig 4, as was also the condition of the omentum, though in this case it was less marked. On the peritoneum there was but one split-pea sized focus. On one fold of mesentery were about twenty pin-head foci and one nodule twice the size of a pea. The mesenteric glands were free from invasion. In this animal there were metastases in the other organs. In the spleen were five pin-head to split-pea foci. The right lobe of the liver was firmly attached to the right suprarenal and to the right kidney. The right kidney contained two small foci, the larger split-pea in size, and in the hilus was an elongated gelatinous mass. There were also numerous foci in the lungs.

HISTOLOGY. The microscopic appearance of the lesions produced in the experiment animals by inoculation of this torula is briefly as follows:*

Subcutaneous Lesions. The nodules formed at the seat of inoculation consisted of delicate trabeculæ of connective tissue closely woven together and forming a fine network. The spaces thus formed were filled with a homogeneous gelatinous mass in which were numerous blastomycetes of different sizes, and rarely a few cells, some probably endothelial, with vesicular nuclei, and others connective tissue cells. An occasional giant cell was seen generally toward the limiting edge of the nodule, but these and other cells were never as prominent throughout the nodule as in the original lesion in the horse. The connective tissue surrounding the nodule varied greatly in amount. Sometimes it was decidedly in evidence, as in the case of guinea-pig 2, or it was exceedingly slight in amount. The delicate fibres of connective tissue which ramify throughout the myxomatous portion of the lesion were often accompanied by small bloodvessels. Twice a *lymph node* was found within the gelatinous nodule. It was enlarged and more or less invaded with blastomycetes, which showed their characteristic envelopment interlaced with connective tissue trabeculæ. In these nodes more nuclei were found among the blastomycetes than in the subcutaneous lesions. An occasional giant cell was also present. The advancing edge showed the usual tissue reaction to a foreign body. Lymph nodes outside of the nodule on the opposite side of the body, for example, showed similar changes, all identical in character to the original lesion.

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* Tissues were hardened in 10 per cent. formalin or in Zenker's fluid; cut in paraffin and stained by Nichols's method or with hæmatoxylin and eosin.

Sections of the nodule resulting from *mammary gland* inoculations were similar to those just described. Gland tissue was difficult to discover, but when found the epithelium was normal.

Sections of the *testicle* (two weeks after inoculation) showed great extravasation of serum, leucocytes, and red blood corpuscles. The glandular epithelium was almost everywhere necrotic, the lumen of the tubules filled with necrotic detritus and spermatozoa. Blastomycetes were very scarce, a single individual being found here and there throughout the organ. Only in two small areas were several, six to ten blastomycetes collected together, and in these regions the usual delicate trabeculæ of connective tissue and the gelatinous deposit about the organisms was evident. Immediately surrounding such foci were epithelioid cells and the usual accompaniments of tissue reaction.

Peritoneum. The lesions here, whether isolated foci or covering the membrane in a thick, uniform gelatinous layer, were identical with those heretofore described, viz., blastomycetes surrounded by a gelatinous material and bound together by a delicate network of connective tissue, such nuclei as were present being those of the connective tissue.

The lesions in the spleen, kidney, and lungs of guinea-pig 3 have not yet been studied histologically, but since they are macroscopically identical with the lesions described elsewhere and unmistakably typical of blastomycetic infection, it is fair to assume that macroscopically they will show the same type.

CONCLUSIONS.

1. The lung lesion in the horse was caused by a torula; whether identical with Klein's, Plimmer's, or one of Sanfelice's is not yet determined.

2. Inoculations of rabbits and guinea-pigs with material from the original lesion and with pure cultures of the torula obtained from it, reproduced similar lesions in these animals, and if time permitted, metastases.

3. This torula produces a purely inflammatory reaction in tissues. It does not cause a proliferation of epithelial cells; it may cause a necrosis of them or it may leave them uninjured.

4. The results of my experiments are identical with those of Nichols, though I seem to have been working with a more virulent organism.

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MOLASSES AS A FOOD FOR HORSES.[1]

By George H. Berns, D.V.S.,
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In volume xxv., No. 11, of the *American Veterinary Review*, published in February, 1902, Dr. G. E. Griffin, Veterinarian, Artillery Corps, U. S. A., and stationed at Fort Sheridan, Ill., made a most interesting and instructive report upon the value of molasses as a food for horses. While serving with the 5th cavalry in Porto Rico from 1898 to 1901 he observed that the natives fed their ponies exclusively upon a very poor quality of grass mixed with molasses, and that a large quantity of molasses was added to their drinking water, and that the animals endured surprisingly the hard usage and brutal treatment they were subjected to by the native Porto Rican and Spaniard.

This caused him to begin a series of experiments with feeding molasses to army horses. He selected eight horses on January 1, 1899, and continued to experiment until June 1 the same year. The regular rations, consisting of twelve pounds of oats and fourteen pounds of hay per day for each horse, were gradually reduced, and cut grass mixed with molasses, diluted with 25 per cent. of water, was substituted. The animals the first day or two refused, or ate but sparingly of this substitution, but gradually became accustomed to it, and by the 10th of the month all the horses were eating thirty-five pounds of cut grass and fourteen pounds of molasses daily, when the regular rations of oats and hay were withdrawn.

From January 1st until January 17th these animals were doing the usual routine work of the garrison, amounting to five or six miles a day. Beginning on January 17th the regular amount of work, consisting of twelve miles a day—that is, eight miles walk, two miles regulation trot, one mile slow gallop and one mile fast gallop—and carrying about two hundred and three pounds, was begun and continued every day except Sundays until the termination of the experiment.

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[1] Read before the Twelfth Annual Meeting of the New York State Veterinary Medical Society, at Brooklyn, September 9 and 10, 1902.

During the first ten days, while the regular ration of hay and oats was being reduced, and the horses failing to eat the new food, each animal lost about twenty-seven pounds in weight; but, beginning on January 26th, they commenced to pick up, and by February 5th all of them regained their original weight, and continued to improve so that by March 1st each animal had gained about fifty pounds over the original weight.

Early in February it was observed that all the animals showed a tendency to constipation, and to correct this a little bran was given, which had to be repeated on an average of every two weeks.

Dr. Griffin also experimented with four horses which had been on the sick report for a long time suffering from chronic indigestion and its consequent loss of condition, scratches, skin abrasions, etc. On February 3d all of them were suddenly deprived of their grain and hay and put on a ration of six pounds of molasses and twenty pounds of grass daily. They refused the new food for two days, but on the sixth day they cleaned out their mangers and continued to feed well. These animals commenced to pick up at once, and within a few weeks had improved so wonderfully that their drivers failed to recognize them.

Dr. Griffin concludes his interesting article by saying that all the horses partaking of the molasses improved in spirit, coat, condition, wind, and flesh, looked better than any other horses in the garrison, and he draws the following conclusions:

1. Thirty-five pounds of grass and from thirteen to fifteen pounds of molasses as a daily allowance is sufficient to maintain a horse of one thousand pounds weight in good condition in a climate similar to that of Porto Rico.
2. Sudden change from dry food to this ration is not at all injurious and does not derange the digestive apparatus.
3. That horses on this ration appear to be able to do more work and present a much better appearance.
4. That the cost of feeding is reduced from about twenty-seven cents per day to fifteen cents per day.

Dr. Liautard, who has spent the last three or four years in Paris, France, but continues to take an active interest in veterinary matters in this country, having read Dr. Griffin's article on

"Molasses as a Food for Horses," made a thorough investigation of the subject in the French Capital and publishes his discoveries in a leading article in the *American Veterinary Review*, July, 1902, vol. xxvi., No. 4. Dr. Liautard recently visited the French horse show and noticed a little side exhibition where molasses bread and molasses biscuits were sold. He attended a meeting of the Société Centrale where the question of molasses feeding became the subject of a most interesting discussion, in which very important facts were presented by one, Mr. Lavalard, who is director of the cavalry of the Compagnie Generale des Omnibus, and having charge of fifteen hundred horses.

Mr. Lavalard has had all his horses, which weigh between 500 and 600 kilog. each, fed on the following rations for a long time: Crushed oats, corn, and beans mixed, 7 kilog.; molassed peat, 2 kilog.; cut straw between 3 and 4 kilog., with no hay whatever. He reports most gratifying results, and said that the cost of feeding had been reduced from about fifty-five cents to a fraction over thirty-five cents.

Dr. Liautard says that many compounds of molasses have been made, but that molassed peat, sold under the name of molassine, is to-day extensively used not only in Paris, but in the German, Austrian, and Russian armies, and from the general total of observations made the following conclusions have been adopted:

1. That there is no danger or inconvenience whatever to give in the daily rations of a horse at least 6 kilog. of molassed peat of good quality in the proportion of 20 per cent. of peat and 80 per cent. of molasses.

2. That to the extent of 1 kilog. at least, molassed peat takes absolutely the place of the same quantity of good oats.

3. That by this change of diet the general condition, muscular power, energy to work, and health not only remain perfect, but that the coat looks better and more glossy.

As veterinarian to the firm of Arbuckle Bros., sugar refiners and coffee dealers, of this city, employing about one hundred head of heavy draught horses, which have been fed to a very large extent upon molasses for over one year, I have had an excellent opportunity to observe its effects, not only as to its nutritive value as a food, but also as to its action upon the general health of horses.

Arbuckle Bros. having shipped cargoes of molasses to Europe to be used as food for horses, decided to experiment with it in their own stables, and on April 15, 1901, selected two extremely unthrifty-looking animals as subjects.

No. 1 weighed 900 pounds; No. 2 weighed 940 pounds. Both animals were photographed, and their pictures plainly show their miserable condition.

Without any preparation whatever they were suddenly deprived of their usual rations of hay and oats, and received one quart of molasses diluted with three quarts of water and mixed with five pounds of cut hay three times a day, and were allowed to drink all the water they wanted, but received no long hay nor any other kind of food, and no exercise. For a day only they minced over their rations; the second day they cleaned out their mangers, and continued to eat well until the termination of the experiment, which lasted six weeks. It was noticed that during this time both animals consumed larger quantities of water, but showed no symptoms of constipation or diarrhœa, or any other signs of digestive disturbances; their general condition improved wonderfully in two weeks' time. No. 1 had gained 40 pounds in weight; No. 2 had gained 45 pounds in weight; in four weeks' time No. 1 had gained 95 pounds in weight and No. 2 had gained 102 pounds in weight. Both animals were shedding their old coats, and by June 1st No. 1 weighed 1075 pounds and No. 2 weighed 1086 pounds, and both showed beautiful new glossy coats, and when led from the stable were full of play, life, and energy, and could not have been recognized as the same animals. One was sold to a retail grocer in this city, and the other was retained by the firm and sent to work. Both animals remained in good condition and did their work well, in spite of the fact that they had not been exercised in six weeks.

The success of these experiments caused the firm to begin the systematic feeding of all their heavy truck horses, one hundred in number, with molasses on June 1, 1901. At this time all of the horses were in fair working condition; average weight of each about seventeen hundred pounds, and doing an average day's work of ten hours, seldom going any faster than a walk, but pulling very heavy loads—two-horse trucks carrying twenty-five barrels of sugar, or about five and one-half tons; three-horse trucks carrying thirty-five barrels of sugar, or about seven and three-quarter tons. Each animal received a mixture of one quart of molasses diluted with three quarts of water and thoroughly mixed with six pounds of good quality of cut hay, one and one-half quarts of corn meal, and two and one-half quarts of coarse bran for breakfast, five quarts of dry oats in the middle of the day while in harness, and the same mixture and quantity of molasses, cut hay, corn, and bran for supper, with eleven pounds of long hay added for the night.

Under these rations, and doing the same amount of work, all the animals gradually improved in condition and gained in weight, their coats became slick and glossy, and to-day there are no finer-looking truck-horses in Greater New York. Their general health has been excellent, and cases of acute indigestion or spasmodic colic have been very rare in Arbuckles' stables during the last fourteen months, where they were quite frequent in former years.

The success of Arbuckles', together with the report published by Drs. Liautard and Griffin, prompted me to try molasses feeding among my own horses and some of the patients in the infirmary.

Two patients, one a brown gelding greatly reduced in condition from the acute pain of an open joint, and the other a bay truck-horse, poor in flesh and very lame from painful ringbone on a hind extremity, together with my own five driving-horses, were selected for the experiment.

On August 1st, patient No. 1, brown gelding, weighed 1250 pounds; patient No. 2, bay truck-horse, weighed 1140 pounds. They received three pounds of molasses diluted with three quarts of water and mixed with six pounds of cut hay, and two and one-half pounds of corn meal, and two and one-half pounds coarse bran, morning and evening, and about three pounds of long hay at night. My five driving-horses received the same rations, with the addition of four quarts of dry oats in the middle of the day.

The two patients improved very rapidly in condition, and on August 15th, No. 1, brown gelding, weighed thirteen hundred and twenty pounds, having gained seventy pounds. No. 2 weighed twelve hundred pounds, showing a gain of sixty pounds. September 1st, No. 1, brown gelding, weighed fourteen hundred and fifty pounds, and No. 2, bay truck-horse, weighed twelve hundred and fifty pounds; total gain in thirty-one days, No. 1, brown gelding, two hundred pounds; No. 2, bay truck-horse, one hundred and ten pounds.

I very much regret that my driving-horses were not weighed when the change of diet was commenced, but they have done their usual amount of work, they drive up well, do not fag out in travelling long distances, and are certainly looking much better than they were five or six weeks ago when they were getting from twelve to fifteen quarts of white oats and about fifteen pounds of long hay daily, and, as in all other experiments, not the slightest signs of indigestion were noticed.

From the above described practical feeding experiments conducted in different countries and under widely different conditions it is safe to conclude:

1. That molasses of a good quality is a most nutritious food for horses, easily digested and assimilated, and will, in many cases, correct faulty digestive processes.

2. That one quart of molasses at a cost of three cents will take the place of from three to four quarts of good quality oats at a cost of from four and one-half to six cents.

3. That a sudden change from dry oats to molasses mixed with other food-stuffs is perfectly safe and causes no disturbances of the digestive organs.

4. That molasses-fed horses will do fully as much work, and at the same time remain, as a rule, in much better general condition than animals fed on dry food, while the cost of feeding is reduced from 25 per cent. to 33 per cent.

At first glance it seems very strange that an article of a semi-solid consistency, sweet of taste, dark in color, sticky and unpleasant to handle, should be able to take the place of nice, clean, fine-looking oats, which, from time immemorial, has been the recognized standard food for horses; but when we study the subject for a few moments from a physiological point of view, and at the same time consider the conditions under which our work-horses are kept, most all of you will probably agree with me that it is not at all surprising, but perfectly logical.

It is an established physiological fact that all foods entering the animal body by way of the mouth must be reduced to a soluble condition before absorption into the general circulation can possibly take place.

It is also an undisputed fact that starches must be converted into sugar or glucose before absorption or assimilation takes place.

Oats being a hard, dry substance, and largely composed of starch, require a great deal of preparation on the part of the animal before they are reduced to a soluble condition and the starch converted into sugar. They must be thoroughly masticated or triturated by the molar teeth and mixed with the various salivary secretions before they are fit for stomach digestion.

In the stomach and small intestines the gastric, pancreatic, and intestinal juices, together with the bile from the liver, must be brought into contact with it, each in its turn and each doing its allotted work, before the wonderful chemical transformation, reducing the hard, dry oats into the nutritious pabulum called chyme, is accomplished.

The question now arises: Is this intricate process always accomplished in the horse? Anyone who has had experience with hard-working draught-horses will agree with me that quantities of whole oats, or partly crushed oats in various stages of decomposition and putrefaction, are found in the manure of many *horses,* and in bad cases the manure is of an unnatural color, very offensive, and of a semisolid consistency. This proves that the process of digesting oats is imperfectly performed, that they are not always reduced to a soluble assimilable condition, and, therefore, not only lose much of their nutritive value as a food, but remain in the intestinal tract, decomposing, fermenting, generating gases, and causing colics and more frequent milder forms of intestinal disturbances.

Many such horses are always hungry and will eat unlimited quantities of oats and receive but little benefit therefrom, and remain in poor condition, while others become slowly poisoned from the undigested fermenting residue constantly present in the alimentary canal, and have but little appetite for food of any description.

Now, let us consider the conditions under which our work-horses are kept: many of them work from eight to twelve hours a day, draw heavy loads, and are obliged to travel many miles; at five or six in the morning they receive a full meal of dry oats, and after feeding are allowed all the water they desire to drink, and are immediately placed in harness and kept steadily at work until 11 or 12 o'clock, when they receive their noon meal, consisting of from four to eight quarts of dry oats fed out of a canvas nose-bag; as soon as the meal is finished they must again assume their regular drudgery, and continue until 5, 6, or 7 o'clock at night, returning to their stables completely tired out and greatly exhausted. From four to eight quarts of oats and from sixteen to twenty pounds of hay are placed in front of each horse, and he is left for the night.

The poor animal is hungry when his noonday meal is served, and he is hungry and exhausted when his evening rations are placed in front of him. His system demands nutrition, and he greedily devours his oats and hay, but unfortunately does not take time to masticate it properly, and the above-described digestive disturbances, resulting in malnutrition and malassimilation, are the inevitable results if he is constantly fed on dry food, which is difficult to digest, and, as we have seen, requires so much preparation.

Molasses, on the other hand, while it contains a larger quantity of nutritive material than oats, is in a soluble condition the moment it enters the mouth, and, therefore, readily digested and absorbed. If properly diluted with water and thoroughly mixed with a liberal quantity of cut hay, a little corn meal and bran, it serves to soften the other foods and renders their digestion much easier, and I believe that most all work-horses, at least, would be greatly benefited if they received from two to three quarts of molasses a day.

"VETERINARY DENTISTRY."[1]

By R. W. Ellis, D.V.S.,
NEW YORK CITY.

Solomon, I think it is, who is credited with having said "There is nothing new under the sun." Whether this be true or not, we are daily forced to look at old things from new points; and in this paper I am endeavoring to view "veterinary dentistry" from a different point of view from the one which, it seems to me, most of us view it. We have regarded it too much, I fear, as something that needs no special attention from us as veterinary practitioners beyond the point of "fixing a horse's mouth" when called upon to do so by coachman or trainer, and solely because they ask us to do so, not, as in other operations, because we decide it is the thing to be done after examination of the subject.

The cause, I think, for the suggestion to operate upon the teeth, usually emanating from the source mentioned instead of (as it should be) from the practitioner, is that we do not pay a sufficient amount of attention to the horse's mouth. The result of this inattention on our part has made this particular branch of veterinary surgery a prey to empiricism and a menace to our practice laws in States where they exist. Having thus tried to establish what seems to me a fair justification for introducing this topic, and engaging your interest, I will say, from Solomon's viewpoint, that I am not attempting to teach the members of this Association anything new, but simply wish to review with you, briefly, an old subject, which impresses me with greater importance as I look into it more closely, with the hope of provoking a discussion and learning something therefrom. Leaving aside the structure of the teeth and all tedious minutiæ (data upon which is as accessible to all present as it is to me, and its repetition here tiresome), let us at once proceed to briefly review the horse's mouth relative to his teeth in the normal state, before touching upon the abnormalities which, it is my purpose to show, would either not exist or be present in a much modified form if we did our duty at all times in regard to making examinations of the horse's mouth. I will endeavor to qualify this statement at another point in this paper. The number of teeth ranges from thirty-six to forty-four, forty being the number usually considered normal and regular in the horse, consisting of twenty-four molars, twelve incisors, and four tusks or canine teeth, commonly called bridle teeth. The absence of the four last named, being considered regular and normal in the mare, makes her total thirty-six. These teeth, however, are sometimes present in the mare as she advances in age. In either sex we may find in addition to those already mentioned four additional supplementary premolars or vestigials; their situation, when present, being directly in front of the first premolar in both the upper and lower jaws. I have seen but one mouth in which the vestigial premolar was present in the lower as well as the upper jaw. In this case it was present on one side only, in the lower jaw; and I have every reason to believe that their existence in the lower jaw is extremely rare. Discussion may throw some light on it. Just why the vestigial premolars, as we find them in the horse, are in irregular condition, existing in some subjects and not in others, I am not prepared to state positively. One theory is advanced that they do exist regularly prior to the replacing of the "milk-teeth" by the permanent teeth, they forming the number of the first set, and are in most instances crowded out by the permanent teeth, but occasionally being retained; hence, we find them as an irregular condition. I am inclined to accept this theory, especially as we notice that other animals, carnivora, swine, etc., have four premolars instead of three, making seven in all in each jaw, instead of six as in the horse. Indeed, naturalists insist upon four premolars in the horse, counting the vestigials as the first; and what we call the first they term the second premolar, because if the vestigial does not exist they contend that it has been crowded out with the shedding of the milk-teeth—a condition which might readily occur when we take into consideration that the premolars in the horse are vastly different from those in other species of animals in that in the case of the horse they are the largest teeth in the whole row, in contradistinction to other animals, including man, in which they are somewhat insignificant as compared with those succeeding them. Dame Nature seems to have concluded that the character of the horse's food demands that he have three good stout premolars rather than four indifferent ones, the fourth one remaining only as a trace (as its name implies) of a tooth which positively was developed in the prehistoric horse. Not infrequently in the horse we find the last molar to be the smallest in the row, especially in the lower jaw, a contrary condition to that of the carnivora and man. The molars of the lower jaw in the horse are, approximately, about two-thirds the width of those of the upper jaw. There is also considerable disparity in the width of the two jaws, the upper being much wider than the lower jaw; and when the mouth is closed, so that the upper and lower incisors sit squarely over each other, the lower molars do not cover more than about an eighth of an inch on each side of the inner border of the upper molars. The amount is not the same over the entire length, however, varying with the degree of curvature of the upper jaw; so that the horse can only grind on one side of the jaws at one time, during which the incisors are not at all in contact. In a normal mouth the grinding surfaces of the lower molars should bevel slightly from above to below and from within outward, and the opposite condition exist in the upper molars; and there should be nothing existing either on the grinding surfaces or on their borders to prevent them from passing over the full width of their wearing plate while in contact over their entire length. Any condition other than this is abnormal. Following are some examples: First, and the most common condition that we meet, are sharp spiculæ, which result from the extremities of the rib-like folds on the outer surfaces of the teeth being gradually drawn out to sharp points by the two bevelled plates passing over each other during the process of grinding food; the harder materials in the tooth-formation persisting, while the less harder wear away. These spiculæ, if not removed, lacerate the inner sides of the cheeks as a result of pressure from without by the cheek-piece of the bridle, and themselves become the cause of further trouble by preventing the two plates of the upper and lower jaws from passing completely over each other, thus restricting the grinding surface. This in turn causes these "spiculæ," small and comparatively innocent at first, by lack of contact with opposing surfaces, to increase in length and continue to more materially interfere with the proper mastication of food; and as they increase in length their base also becomes broader, and they continue to restrict more and more the lateral movements (diduction) which the jaws describe in crushing the food. This, if allowed to go on indefinitely, might be responsible for the very grave condition described by Girard and H. Bouley as "bevecing of the molars;" in which condition the tables of the molars, instead of meeting each other on an almost horizontal plane, are sometimes worn down obliquely, so that they become almost parallel to the median plane and overlap each other like the blades of a pair of shears. This obliquity of the wearing surfaces enables the external side of the superior molars and the internal side of the inferior to frequently acquire an enormous length, even to the extent of injuring the parts around the crowns. The French authors give this condition the name of "molaires en ciseaux," from their resemblance to a pair of shears. I do not wish to be understood as claiming that this grave condition just described is always or only due to neglected spiculæ, nor that neglected spiculæ would always lead to such an exaggerated abnormality; but that it is possible for it to result from neglected spiculæ, if they occur early in the animal's life, by restricting the movements of the jaw across each other, and gradually encouraging the upper jaws to spread outward and contracting the lower jaws. This, if carried on for a lifetime, would so change the direction of the teeth that instead of their grinding surfaces meeting the sides would meet and sharpen out in the manner described. But the direction of the teeth resulting in this abnormal relation and consequent condition might, on the other hand, not be due to neglected spiculæ, but to having started their growth at an improper angle. Another somewhat common condition that we are brought in contact with is a projecting molar, resulting from the absence of the opposing molar and consequent lack of wear. I will not touch upon the diseases of the teeth in this paper, but have simply mentioned one or two abnormal conditions as compared with the normal state, and will now endeavor to back the statement that these abnormalities would not exist or be present in a much modified form if we did our duty in regard to examining the horse's mouth at all times, and gave it attention when we considered it required it, and not merely when a layman thinks that something should be done. I do not mean that we shall be so undignified and unprofessional as to ask men to allow us to attend their horse's teeth; far from it. That is done by another class of "gentry" whom you all know; but we can be careful to examine a horse's mouth as to the condition of his teeth when we are called upon to prescribe for him. We may be told that he is "off his feed," or "out of condition," or "isn't just himself," "does not drive up as he used to," etc., and it is our privilege then to examine him thoroughly, and there is no restriction placed upon his mouth. If we find that his teeth are in perfect condition it helps to our diagnosis by removing them as one of the possible causes, and if, on the other hand, they require attention, we learn that. You have probably all of you, at some time or other, found a so-called "subject to colic" to be suffering from irregular molars, and on correcting that condition had the satisfaction of seeing the horse enjoy the same freedom from that trouble that another horse would. I have. When examining horses for soundness we have the privilege of passing the hand over the surface of the molars just as we would pass it over any other part of the body. We need not condemn him because his teeth are slightly irregular, and we need not mention it in our report to our client, merely making a mental note of it for future use; but if there exist a molar decayed or one missing (not likely conditions, it is true, but possible ones, nevertheless), it is our duty to our client to know of their existence and to acquaint him of it. If we have found merely irregularities, we need not call his attention to it necessarily until after he has purchased, as it is a remediable condition; but we should then, by all means, acquaint him of the fact, and impress upon him the importance of this grist-mill (the mouth) turning out a product that is in proper condition to pass down into the laboratory (the stomach), where extracts are to be made from it for the requirements of the body. One or a dozen men cannot materially effect the condition of the horse's teeth of the country any more than one man can repress glanders, but if there was unity of action in that direction, very few mouths would escape observation for any length of time, and would not have opportunity of reaching the extreme conditions cited; and the horse owner, impressed with the importance of the subject and the interest taken in it by the professional man, would not be a prey to the empirical self-styled "veterinary dentist," who hopes by thus dubbing himself a specialist to impress the uninitiated and escape the law forbidding him to practice veterinary surgery without a license. I always insist upon my students at the college examining the molars as well as the incisors in examinations for soundness, with the hope that they will continue to do so in practice, and more and more appreciate and teach their clients to appreciate its importance, so that "veterinary dentistry," like other branches of medicine and surgery, may become prophylactic. Gentlemen, while I know that I have scarcely outlined the subject under the title of this paper, I will end it at this point, and trust that my shortcomings may be overlooked because I am considerate enough to *stop* somewhere. In fact, the paper would have been more properly entitled "The Horse's Mouth," as I have not dealt with a single procedure to overcome the abnormalities mentioned, which would be, more correctly speaking, "veterinary dentistry." I have purposely curtailed my paper, so as to leave the operative field untouched, as we have another paper on the same subject, which I have assumed will enter into it.

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[1] Read before the Twelfth Annual Meeting of the New York State Veterinary Medical Society, Brooklyn, September 9 and 10, 1902.

MILK AS A CONVEYER OF DISEASE.[1]

By T. J. Cooper, V.S.,
PATERSON, N. J.

Milk is the original and natural secretion of the mammary glands, similar to the secretions of the salivary glands, and not changed blood as some take it to be.

It is a bluish-white, opaque fluid, with a pleasant, sweet taste.

As these glands are subject to various forms of disease, changing their secretion, the use of milk as food for the human race and animals is of the utmost importance. Necessity demands us to be on the alert to recognize and prevent the spread of the different diseases which are communicated through its use, such as anthrax, foot-and-mouth disease, cholera infantum, typhoid fever, scarlatina, diphtheria, and tuberculosis.

The tracing of anthrax bacillus through milk is not sufficiently proven, though the anthrax bacillus may occur in the milk of animals with the disease, and anthrax does occur in the intestinal form in man.

Foot-and-mouth disease may be caused by milk from affected animals. Hertwig, with two friends, drank the milk from a cow with the disease, and contracted it; Jacob did likewise, with the same result.

In typhoid fever there is a large amount of evidence showing epidemics to be conveyed through the milk. This is strengthened by the fact that the bacillus typhus thrives in it; the infection was traced to the person carrying the disease from the place where it existed, and milking the cows, also by the dairy pails, which are often cleansed in the kitchen which may open into the sick-room. One case was reported where the infection was carried by the towel used on a patient and afterward used for drying the milk pails.

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[1] Read before the Passaic County Veterinary Medical Association, at Paterson, N. J., November 4, 1902.

The epidemics of Svarteborg in 1889 and the one reported by Welpey in 1893 were traced to the modern creamery, which received milk from the neighboring farmers, separated it and returned the skim milk to the contributors. When the milk from any contributing farmer was infected from disease in his family, all the creamery milk received its share of the germs.

In July, 1895, the severest epidemic of typhoid fever of which there is any record in Connecticut, occurred in Stamford. There were 200 cases in that city of 18,000 inhabitants. It was concluded that the disease spread from infected milk, and that it became infected by washing the milk cans with water from a highly polluted well. This shows the necessity of thorough sterilizing the cans and all utensils.

Milk infected with scarlatina can generally be traced to the milkman's home.

Some epidemics of diphtheria have been traced to consumers of a certain supply ; it evidently conveyed the disease.

Cholera infantum has been contracted by drinking milk containing the germs of that disease. Gaffky and Simpson have reported an epidemic caused through milk ; and it is now claimed that this disease is due almost solely to the ingestion of impure milk. Cholera infantum or milk diarrhœa is a disease of infants, and is essentially a preventable disease by the better keeping and caring of the dairy stock, milk, and cleanliness.

Milk as a cause of tuberculosis in the human race and all animals raised on it has caused no small amount of attention among the veterinary and medical professions, as the extent to which it is used is very large, and it can thus spread the disease broadcast.

While practising with Dr. A. Crowforth, of Lockport, N. Y., in 1896 we were called by a farmer to treat a cow with impaction of the rumen. While there he had us examine another cow which he thought had garget ; he had been selling her milk up to a week or so before this. Upon examining her udder we found it very much indurated, no fever present, and the milk very much decreased in quantity. We milked some milk out of each quarter into sterilized bottles, and took them to the laboratory for microscopic examination. The microscopic examination of this milk revealed the presence of a large number of bacilli tuberculosis, which was confirmed by feeding the milk to a three-months'-old kitten, which contracted the disease.

Milk from a tubercular cow, though it does not contain the bacilli tuberculosis, is very injurious to those who consume it if they have the disease ; for, as Prof. James Law first demonstrated, though the milk does not contain the bacilli tuberculosis, it does contain the tuberculin, the toxic properties of the bacilli, and acts on the diseased consumers the same as if they took a small quantity of tuberculin into their systems. It aggravates the existing disease, and produces fever and emaciation, thus hastening the death of the consumer.

Dr. Crowforth fed sixteen kittens on milk from a cow that reacted to the tuberculin test, and the milk proved free from the bacilli tuberculosis by the daily microscopic examination for ten days, followed by the inoculation test in three kittens which proved on post-mortem to be free from the disease.

The remaining thirteen kittens he fed on milk from a cow that did not react to the tuberculin test and did not have the bacilli tuberculosis in the milk, and they all thrived nicely ; then fed them on the milk from a cow that reacted to the tuberculin test and had the bacilli tuberculosis in the milk, and they all contracted the disease and began wasting away, and several died. Then he gave them the milk from the cow that did not react to the tuberculin test and did not have the bacilli tuberculosis in the milk. On this milk they all thrived. He then gave them the milk from the cow that reacted to the tuberculin test but did not have the bacilli tuberculosis in the milk, and they all began to get worse, and presented well-marked symptoms of tuberculosis, and the autopsy on them all showed lesions of the disease.

This experiment thus confirms the opinion that the tuberculin in the milk is as injurious to the affected subjects as the bacilli tuberculosis.

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CONSOLIDATED FRACTURE OF THE SECOND PHALANX FOLLOWING NEURECTOMY. Subject, a mare, with articular and tendinous windgalls of both fore fetlocks. After puncturing and injecting antipyrine, tannic acid, and alcohol, and subsequently blistering, median neurectomy was finally performed on the left leg. After some time fracture of the second phalanx occurred and the pieces became united.—*Rev. Vet.*

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

TRANSMISSION OF TUBERCULOSIS TO MAN BY ACCIDENTAL INOCULATION AND EXPERIMENTAL REINOCULATION OF A CALF. In May, 1900, Overbeek, of Utrecht, in making a post-mortem on a cow affected with generalized tuberculosis, accidentally cut the small finger of the right hand of one of the flayers in the abattoir. In February, 1902, this man applied for treatment at the surgical clinic of the Faculty de Médecine at Utrecht. The small wound healed in three days after the accident, but the finger remained painful and gradually became swollen.

Examination showed the skin to be thickened and of a bluish color, especially at the level of the articulation of the last two phlanges, fissured over the centre of the swelling, covered with small scabs, and painful to pressure. The cubital ganglion of that side had become as large as a pea. During the last year the man had coughed, expectorated, and at the summit of the right lung dulness and moist râles were detected; the expectoration contained no bacilli.

Three guinea-pigs were inoculated into the inside of the thigh by introducing subcutaneously two pieces of skin obtained from the finger, two died from tetanus, and the third showed generalized tuberculosis seventy days after the inoculation. Two other guinea-pigs inoculated with the pulp of the tubercular spleen obtained from the latter were found affected with tuberculosis when killed. The result was identical in guinea-pigs inoculated with pieces of the cubital ganglion. Tubercle bacilli in large numbers were found in these lesions.

The lesions of the skin and cubital ganglion were, therefore, without doubt, tubercular. The microscope revealed in the skin tubercles, giant cells, and in the ganglion caseation; bacilli were not numerous—in strong contrast with the lesions in the guinea-pigs.

On May 15th a heifer, three months old, was inoculated under the skin of the neck with 2 c.c. of an emulsion in sterilized normal salt solution of the splenic pulp of the guinea-pig inoculated with a piece of the man's skin. There were swelling at the seat of inoculation, tumefaction of the cervical ganglia of that (right) side, diarrhœa, cough from time to time; animal was destroyed July 12th.

Necropsy. Tubercular granuloma as large as a fist at the seat of inoculation, containing a cavity filled with soft, caseous material; cervical ganglia hypertrophied, 12 cm. long, and 6 cm. wide, calcified at points, and showing disseminated, caseous centres; numerous tubercles upon the visceral pleura and in the lungs, with caseous pneumonia centres; bronchial and mediastinal glands hypertrophied and tubercular, and tubercles in the liver and spleen. Microscopic examination revealed numerous bacilli in these lesions.

Guinea-pigs inoculated with the product of these lesions died from tuberculosis.

According to Sprongk and Haefnagel, the tubercle bacilli of man and of the bovine are only two races of the same species; that the bacillus of tuberculosis in man can acquire the properties of the bacillus of bovine tuberculosis by several passages through bovine animals; that inversely the bacillus of bovine tuberculosis, by passing through man, may become identical with the bacillus of human tuberculosis.

This observation leaves no doubt upon the possible infection of man by tubercular bovines through milk, butter, and meat.—*Semaine Médicale.*

BOTRYOMYCOSIS IN THE MAMMARY GLAND OF A MARE. Subject, a mare, twelve years old, and emaciated, observed by Dr. Unterhoessel, of Bologne. The mammary tumor extended downward to the hock and forward to the umbilicus. It was hard, nodulated on its surface, the nodules varying in size from that of a hazelnut to that of a walnut, and some of them discharged a yellowish-brown, grumous pus.

Necropsy. The glandular tissue had almost completely disappeared from the pressure of the parasitic neoformation, which weighed 35 kilos. Macroscopic, microscopic, and bacteriological examination showed the tumor to be botryomycosis. No tumors were found in any other part of the body—further evidence that botryomycosis has no tendency to metastasis. This growth was identical with some cases of so-called "scirrhus cord," which at times presents identical characters.—*Berliner Thier Wochenschrift.*

PATHOLOGICAL IMPORTANCE OF THE LARVÆ OF THE GASTROPHILUS IN THE STOMACH OF THE HORSE. Perroncito has studied the lesions of this parasite, commonly called "bots."

These larvæ, when quite small, firmly fasten themselves to the epithelium of the mucous membrane by their perforating mandibles and by two mandibular booklets that develop subsequently. They penetrate ordinarily as far as the cephalic ring, desquamate the epithelium, and cause the formation of a cavity with a raised and convex border and a cicatricial bottom. They may penetrate deeper, making a cavity from ½ to 7 mm. deep, whose bottom is the submucosa, which is the seat of an inflammatory process; this alteration may even involve the entire stomach wall. The irritating action of the mandibular booklets and the bristles covering them may extend over a more or less larger area. When the first layer of the muscular tunic is affected the connective tissue proliferates and the gastric wall becomes thickened; the cicatricial tissue compresses the muscular fibres and causes them to atrophy and disappear. In some places this process may extend to the external muscular tunica; the bottom of the ulcer is converted into cicatricial tissue, and the peritoneum at this point thickened; the wall of the stomach may present patches of calcareous infiltration.

Horses infected with the larvæ of the gastrophilus are more susceptible to infectious diseases because pathogenic microbes can more readily penetrate through the ulcerations of the mucous membrane. Under such conditions influenza, pneumonia, and anthrax are more fatal when the probable channel of infection is the solution of continuity of the wall of the stomach.

Flohil has seen a colt suffering from several attacks of colic with fever, which finally succumbed to septicæmia. He attributed the infection to solutions of continuity by the larvæ of the œstrus in the wall of the œsophagus.

Numan has seen a case of perforation of the stomach by the gastrophilus, and Conti a colt destroyed by rupture of the organ; the stomach contained many larvæ. The gastric wall becomes further weakened by the action of micro-organisms producing suppuration and gangrene.—*Rev. Vet.*

TREATMENT OF PARTURIENT PARESIS. Without deprecating the good results obtained from Schmidt's treatment, de Jong, considering that this treatment often fails and that death is caused by cardiac paralysis of a toxic nature, has substituted for iodide of potash a solution of salicylate of sodium and caffein. This solution is rapidly absorbed, and counteracts the depressing effects of the toxin. "The treatment has given surprising results."—*Ann. de Med. Vet.*

EDITORIALS.

ANENT "THE BREEDERS' GAZETTE'S" ATTITUDE TOWARD THE VETERINARY PROFESSION.

IF the editor of the *Breeders' Gazette* were asked whether his paper was engaged in a systematic effort to discredit and injure the veterinary profession, he might say that it was not. He might say that he was a great admirer of the profession and that he desired to help it so far as he could. Perhaps he would say that by pointing out items of veterinary work and effort that are in his estimation defective he is doing as a fond parent would do with an erring child.

Criticism may be friendly or it may be unfriendly. It may be for the purpose of helping or for the purpose of hurting. Whether it is the one or the other may be shown by its truthfulness and its form. If the criticism is based on false premises and contains falsehoods, if it is sweeping, if it contains innuendoes calculated to cause the impression that the situation is far worse than stated, and if it is expressed in harsh, derogatory language, it is safe to assume that it is uttered with unfriendly intent.

The above is general in its application, but we suggest that our readers use the standard laid down as a scale of points for judging the intent of the editors of the *Breeders' Gazette* when they write upon things veterinary.

In the *Gazette* for August 27, 1902, in an editorial on "Britain and the Argentine Ports," the following occurs: " . . . The altogether extraordinary circumstances which marked the closing of the Argentine ports have made British breeders very restive under the embargo, and certainly constitute one of the most inexplicable chapters in the history of veterinary blundering that has resulted in loss to the live-stock trade. The British ship "Highland Scot" last May embarked at Liverpool a large cargo of cattle and sheep for Buenos Ayres, and on arrival at port the official veterinarian announced that he discovered the presence of foot-and-mouth disease. The ship was immediately ordered out into the roads and quarantine established. The petition of the owners of the ship and of the stock for inspection of a jury of six veterinarians was granted, and their unanimous verdict was that the 'foot-and-mouth' scourge was not present. A few of the cattle were found afflicted with sore mouths, and this symptom, not uncommon, had been erroneously diagnosed by the official veterinarian. This is not surprising; the astonishing feature of the affair is that, so far as present advices go, the wrong perpetrated by the blunder of an incompetent veterinarian has not been righted, and the trade of two countries has suffered in consequence. Little wonder is it that British breeders are harsh in their expressions on the present situation. The temper of breeders has already been so sorely taxed by veterinary authorities in many ways that too great caution cannot be exercised by them in the exercise of authority calculated to disturb internal or international trade."

Here is the *Breeders' Gazette* trying to load upon the veterinary profession the responsibility for an act that, it must be evident from its own testimony, cannot justly be placed upon the shoulders of any veterinarian. The facts of the matter are that foot-and-mouth disease existed in the Argentine Republic several years ago, and that cattle and sheep suffering with this disease were carried from the Argentine Republic to England, and still had the disease in a transmissible stage, for they conveyed it to cattle from the United States that they were brought into direct contact with at Deptford. When this occurred the British Government forbade the admission of live cattle from the Argentine Republic. British ships were sent down the channel to meet incoming cattle boats from the Argentine Republic that had sailed after the quarantine was declared, and it was required that they should slaughter and throw overboard all cattle and disinfect their boats before they were permitted to approach an English port. The people of the Argentine Republic felt badly about this, and upon the first opportunity retaliated by forbidding the admission of English cattle, upon the alleged ground that they were afflicted with the foot-and-mouth disease. It was entirely true that there was foot-and-mouth disease in England at that time, and it was quite possible that the English cattle on the "Highland Scot" were suffering from this disease. American cattle landed in England in 1881 and 1882 with foot-and-mouth disease when there was not a single case in this country, and it was proven that they were infected upon shipboard, probably by the use of head-ropes that had been used upon sick cattle. The English cattle that were sent to the Argentine Republic may have become infected in a similar way. The Argentine Republic has worked most strenuously to repress foot-and-mouth disease, and the government has just offered a law, copied from the English Contagious Diseases of Animals Acts, that is planned to make it possible to keep the country free from infection. It is only upon this condition that the cattle producers of the Argentine Republic can ever hope to regain their market for live cattle in England.

The people of the Argentine Republic have felt that a strong influence in their favor might be created in England if they could only show the English breeders the importance of the Argentine Republic market for pure-bred live-stock. They have done this, and when the English market is again open to them, as it promises soon to be, the influence of the English breeders will be found to have been a most potent factor in accomplishing this end. Therefore, it must be clear that the exclusion of English cattle from the Argentine Republic was not a veterinary matter at all, and was not a thing for which any veterinarian can justly be commended or condemned. It was a piece of broad statesmanship or diplomacy, and the effect has been beneficial to the people of the Argentine Republic.

Why does not the *Breeders' Gazette* blame veterinarians for the exclusion of American and Canadian cattle from the British Isles and the enforcement of the rule that requires them to be slaughtered within ten days upon the docks where they are landed? There has been no contagious pleuropneumonia in the United States for ten years and more. There has been no cattle plague, and there has been no suspicion of foot-and-mouth disease until during the last month. It is well known that this English regulation is not a veterinary or sanitary regulation in any sense. It is merely a subterfuge for protection in a country that is not willing to openly abandon its free-trade policy. The people of Britain have no more right to complain of the exclusion of their cattle from the Argentine Republic on the alleged ground of foot-and-mouth disease than have the people of the United Sitates to complain of the exclusion of their cattle from England on the alleged ground of contagious pleuropneumonia.

It is an historic fact that the *rash, inconsiderate, unjustifiable, injurious* quarantines are those that are established by non-veterinarian authorities. Witness the act of the Governor of Illinois, advised by his lay cattle commissioners and his non-professional, unqualified State veterinary surgeon. It is a miracle that this foolhardy quarantine order against States absolutely uninfected and unsuspected was not the means of entirely killing, for the time at least, the whole export trade in live animals from the United States. If the State of Illinois had a live-stock sanitary board, organized as such boards ought to be, and containing at least one educated veterinarian, such a thing could not possibly have occurred. Nor could many of the other hysterical quarantines established by the cattle authorities of Illinois and Western States have been applied, or even considered, if the respective boards had been properly constituted and contained a veterinary member in a position of responsibility and authority.

It is too much to expect that the *Breeders' Gazette* will admit any of this, and we may confidently predict that that paper will continue to cast slurs upon the veterinary profession and endeavor to cause the impression that it is responsible for every unfortunate circumstance affecting the live-stock of the country. In its last issue, on page 1113, it says: "In view of the fact that foot-and-mouth disease could only have been introduced by importation, it becomes an interesting question as to where these alleged cases originated . . . ; it is difficult to imagine how genuine foot-and-mouth disease could secure entry." Here is an innuendo to the effect that some of the leading veterinarians of the United States who investigated the foot-and-mouth disease situation in New England do not know what they are talking about, and are not able to recognize this disease. There is now a lot of veterinarians in New England who are working day and night with all the energy and enthusiasm that men can command to eradicate as promptly and economically as possible a scourge that threatens the live-stock industry of the whole country, and which, if it should escape to the West, is capable of causing appalling losses. These men are doing infinitely more work than their meagre salary pays for, on account of their professional pride and the desire to make a record in the eradication of this disease that will forever stand to the credit of American veterinary sanitation. The encouragement that they receive from this self-styled organ of the American stock farm is a slur to the effect that they do not know what they are working on.

If the editor of the *Breeders' Gazette* ever has a word of appreciation for the work of the veterinarian upon whose efforts the prosperity of the live-stock industry depends we shall be glad to give him credit for it.

A. V. M. A.

As we go to press the Secretary of the A. V. M. A. announces that some twelve of the fifteen votes of the Executive Committee have been cast in favor of Ottawa, Canada, thus insuring the success of that city. The strength of the profession in Canada should alone assure the success of the meeting, while the presence of the two schools at Montreal and Toronto, and the strong veterinary organization of Manitoba, are factors that must add much to the importance and influence in that territory for the future welfare of the profession.

Canada has long recognized the worth of the veterinary profession in governmental encouragement of the cause of higher veterinary education, the appointment of veterinary sanitary officers, and the government halls of legislation, all of which augurs well for the success of the meeting.

WILL OTTAWA AID THE MOVEMENT?

THE announcement that the Grand Rapids, Michigan, Veterinary College will next year inaugurate a three-years' course; the fact that the Cincinnati Veterinary College has reorganized under a three-years' course of six months each, and that the San Francisco Veterinary College, recently reorganized, has established the same curriculum, leaves but two schools of any importance under the ban of requirements of the A. V. M. A. The decision to meet in Ottawa in 1903, for the Convention of the A. V. M. A. amidst the great body of graduates of the Ontario Veterinary College, we may hope to have a benign influence over their alma mater and a fitting tribute and trophy for the first meeting held outside the borders of the United States. If this one strong school should move in this direction there would no longer be any place for the remaining two-year schools at Indianapolis, Kansas City, and Nashville.

THE death of Dr. Junius H. Wattles, Sr., ends the career of one of the most aggressive factors in the field of veterinary college work in the central West. Dr. Wattles had organized two veterinary colleges in Kansas City, Mo., and maintained each of *them* under very trying circumstances and at times discouraging *conditions*. As individual enterprises and private institutions he continued them under short-term curriculums in order to maintain them financially, and in this way ostracised himself and his schools from the recognition of the profession and the support of the associations. An aggressive foe, untiring in energy and resourceful in every-day affairs, he was potential in his State and city in preventing legislation that would injure the interests of the schools he maintained.

THE amalgamation of *The Veterinarian* and *The Journal of Comparative Pathology and Therapeutics* is a movement in English veterinary journalism of much import to the profession. The strength of its editorial direction will add much to the worth of this periodical, and, we trust, add a stronger support to English veterinary journalism.

THE JOURNAL in closing the year 1902 desires to sincerely thank its readers for the patient indulgence they have accorded the editor. The death of the senior editor, the retirement of another of the staff, and the impaired health for several months of the remaining editor, delayed the issues of the JOURNAL to an unusual extent. With the new year and the added strength to our editorial staff we hope to maintain the same good-will and support of those who have long given to the JOURNAL a loyal support.

MARRIAGE.

AT Kansas City, Mo., November 8, 1902, at the bedside of his dying father, Dr. Junius H. Wattles, Jr., was married to Miss Amy A. Bamber. The ministrations of the Rev. W. F. Richardson in binding together in matrimony the son and his chosen helpmate was concluded in a little while by the last ministrations to the father, whose last wish on earth was to witness the marriage of his son and to place upon them the parental blessing.

NECROLOGY.

JUNIUS H. WATTLES, SR., M.D., D.V.S.

THE death of Dr. Junius H. Wattles, Sr., of Kansas City, Mo., removes an active figure from the veterinary profession.

Dr. Wattles went to Kansas City several years ago from Kenosha, Wisconsin, and closed his earthly career in the city of his adoption November 8, 1902. His death ensued from ptomaïne poisoning, following the eating of some calves' brains.

He was the founder of the Kansas City Veterinary College, in 1891, and remained at its head as chief instructor until it was purchased by the present officers of the institution. He maintained it as a two-year school during his connection therewith. On relinquishing his interest in the Kansas City Veterinary College he pursued a course in human medicine and added the degree of human medicine to his veterinary title, which was obtained at the Chicago Veterinary College in the year 1887.

Dr. Wattles did not find human medicine so attractive a field as that of comparative science, and returned to the practice of veterinary medicine, and, with little to aid him or encourage the enterprise, again embarked in the development of a second veterinary college in Kansas City, Mo. This institution, known as the Western Veterinary College, he conducted up to the time of his death, which, after maintaining it for several years under the most meagre facilities, he succeeded at the opening of the present college year in housing the institution in a building specially constructed for this purpose.

He was a hard worker and aggressive in all his undertakings, and unrelenting as a foe with those from whom he felt he received any injury.

He leaves a wife who barely escaped death from the same cause, and one son, Junius H. Wattles, Jr., a graduate in veterinary science, who mildly suffered from a similar attack, owing to the fact that he ate sparingly of the food that gave rise to the poisoning.

A very touching incident occurred in connection with the death of Dr. Wattles, who, fully realizing that he had but a short time to live, desired to see his son married before passing away. The hasty preparation and performance of this ceremony and the receiving of the parental blessing was followed in a short time by the closing of his earthly career.

Dr. Junius H. Wattles, Jr., was associated with his father in the conducting of the college, and will, no doubt, continue the work of his father.

SIMPLE TREATMENT FOR PARTURIENT FEVER. The treatment of Evers, which, to say the least, is unique, consists in insufflating as much air as possible into the quarter of the mammary gland. The principle of the apparatus used consists of a metallic box filled with oakum to purify the air; one end of this box is attached to a rubber tube, with a canula at its end, and the other to the insufflator, which may be a rubber bulb or a small bicycle pump. The canula is first immersed in boiling water.

With this treatment Evers asserted that he has cured eleven out of twelve cases in from one and one-half hours to four and one-quarter hours; he insists that the treatment must not be given too late. The cow should be milked two or three hours after she gets up and commences to eat. Lutz, following Evers, has treated four cases, with success.—*L'Echo Vet.*

SANITARY CONTROL WORK.

UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF ANIMAL INDUSTRY.—CIRCULAR No. 38.

D. E. SALMON, D.V.M.,
CHIEF OF BUREAU.

FOOT-AND-MOUTH DISEASE; WARNING TO ALL OWNERS OF CATTLE, SHEEP, AND SWINE.

Why this Circular is Issued.

FOOT-AND-MOUTH disease of cattle, sheep, and other ruminants, and swine has recently been brought from some foreign country, and has appeared in a few localities in Massachusetts and some adjacent States. Since this disease has been unknown in America for many vears, and then but to a limited extent, there are few who have practical knowledge of its nature. As it is vastly in the interest of all owners of cattle, sheep, and swine that this disease shall be eradicated promptly, and as they can render important aid, this circular of information is commended to their careful attention.

What Foot-and-Mouth Disease Is.

This disease is an excessively contagious malady peculiar to ruminating animals (cattle, sheep, goats, deer) and swine. Rarely is it transmitted to man. It is characterized by the eruption of vesicles or blisters in the mouth, upon the heels, or between the toes, and upon the teats or udder. The appetite is depressed, the milk flow diminishes, the animal loses condition and becomes lame. After a day or two the vesicles break, peel off, and leave a raw surface that may heal in a few days, or, especially upon the feet and teats, that may remain sore for a long time and lead to serious complications. The death rate is very low, but it attacks the whole herd and many animals are seriously damaged, so that the loss to a herd owner is heavy.

The Importance of Exterminating this Outbreak Here and Now.

European cattle owners have learned by long and bitter experience that this disease is the source of most discouraging, and not infrequently of ruinous losses. While the disease does not often kill, it damages, temporarily or permanently, every cow it attacks to the extent of from $10 to $40. The total loss on a herd is usually enough to wipe out a dairyman's profits for a year or two. The effect upon fat animals is quite as serious. It is not uncommon for the stock owners of England, France, or Germany to be injured by this disease, in a single year, to the extent of $5,000,000. With our much larger holdings of live-stock in this country, the possible losses from this disease, if it were to become general, are stupendous and incalculable. At present the disease exists over a comparatively small area. It is confidently believed by the experts who have investigated the situation that it can be controlled and eradicated. It is important that this shall be done, not only that the other parts of the country shall be protected, but also to prevent the frequent visitations of the disease that otherwise would afflict the live-stock of New England. To this end the aid of all stockmen and farmers is requested.

How Foot-and-Mouth Disease is Spread.

There is no other disease that is so readily and certainly conveyed by contact. It is also conveyed by exposing healthy animals, even for an instant, to the stables, yards, pastures, or cars that have been occupied by affected animals; by buckets, cloths, brushes, or other objects that have been used by or on diseased cattle; by the use of forage exposed in mangers or even in the distant parts of the stable harboring infected animals. The disease is also carried by small animals, as dogs, cats, rats, birds, or upon the hands, boots, or clothing of men. A road along which diseased cattle have passed may retain enough virus to infect other cattle that pass over the same place several hours later. Premises occupied by diseased cattle are not safe for other cattle for a few months after the disease has disappeared. In short, it is to be remembered that every diseased animal is dangerous, and also every animal, person, or thing that has been near it or has been near a place occupied by it. Inspectors may avoid the danger of carrying the disease by cleanliness and disinfection.

How Foot-and-Mouth Disease May be Recognized.

The symptoms of this disease most obvious to stockmen are: sluggishness, shivering, poor appetite, stiffness or lameness, collection of saliva upon the lips, slavering, slobbering or drooling, sucking and swallowing motions of the mouth and throat, smacking of the lips, blisters inside the lips, upon the gums, tongue, or roof of the mouth; later, raw sores in the same places. Blisters and sores may also form upon the teats or udder and upon the heels and between the toes. The flow of milk lessens or ceases, and the subject usually loses weight. All these symptoms may not be present in the same animal, and all are never present in an animal at one time. Moreover, the symptoms occur in varying degrees of severity. They may be very mild or very intense. The later symptoms may be intense lameness, emaciation, sore teats, and garget. With sheep and swine the feet are chiefly affected.

What Owners May do to Protect Their Stock Now and for the Future.

The most important matter is to prevent the infection of animals not yet .exposed. This can be done by avoiding the purchase of affected stock ; by excluding all outside animals from the herd or flock ; by each person who comes near healthy stock avoiding contact with diseased animals or the places or things contaminated by them ; by excluding visitors from the cow stable, sheep, and hog pens ; and by preventing the access of strange or stray animals, which may carry the virus on their feet or hair, although they are themselves in good health. Neither cows nor bulls should be removed from one place to another for service.

Should the herd or flock become infected, the appearance of the first evidence of disease should be immediately reported to the Chief of the Cattle Bureau, a State Cattle Commissioner, the local inspector of live animals, or to the Bureau of Animal Industry office, 147 Milk Street, Boston, Mass.

Urgent Necessity of Immediate Report of First Symptoms Causing Suspicion.

The eradication of this disease and the removal of all quarantine and other restrictions upon the cattle trade can be materially hastened by the live-stock owners themselves, if they will promptly report the first evidence of foot-and-mouth disease in their herds or localities. This fact cannot be suppressed, and the sooner it is brought to the notice of the proper authorities the less the resulting damage will be. It is to be hoped that citizens everywhere will realize the importance of aiding the authorities who are working to eradicate this destructive plague, and they can render no more valuable service to themselves, their localities, or the nation than to immediately report a newly-infected animal or place.

Fine for Neglect to Report the Disease.

The law of Massachusetts imposes a fine of $100 on any person who suspects the existence of this disease and fails to report it in writing to the Chief of the Cattle Bureau, or his authorized representative.

D. E. SALMON,
Chief of Bureau.

Approved:

JAMES WILSON,
Secretary of Agriculture.

WASHINGTON, D. C., December 4, 1902.

A. V. M. A.

To the Members of the American Veterinary Medical Association:

THE next meeting of the American Veterinary Medical Association will be held at Ottawa, Canada, September 1, 2, 3, and 4, 1903. The vote of the Executive Committee was unanimous for that city as the next meeting-place. Invitations have been extended to us by the veterinarians of Ottawa and vicinity, by the Department of Agriculture of the Dominion, and by the civic authorities. Also Messrs. W. C. Edwards & Co., the senior member of which firm has been for many years a member of the Dominion Parliament and an extensive breeder of pure-bred livestock, have invited the Association to visit their breeding establishment at Rockland, Ontario.

There is great enthusiasm among the veterinarians throughout the Dominion of Canada, and they are looking forward with great delight to this opportunity to entertain their professional brethren and their friends from the United States and Island possessions. Also veterinarians outside of the border of the Dominion are glad to have this opportunity to make the American Veterinary Medical Association a fact as well as a name, and anticipate great pleasure in visiting their sister nation upon the north and partaking of the far-famed hospitality and good cheer of its people.

The weather of Ottawa is especially delightful at the time of year when our meeting is to be held, and thus added pleasure will be given to the members and their friends in visiting the many places of interest for which Ottawa and its vicinity is noted.

Ottawa is easily accessible from all parts of the home of our organization by railroad and steamship lines. The trip will make as pleasant a vacation outing as could be devised.

It is expected that the Ottawa meeting can be made to far surpass any previous meeting, both in numbers in attendance and in new membership secured. The Association now numbers about 500. It ought to be 2000. It will soon reach that number if each member will exert his influence to accomplish it. It is urged upon each member that he will use his personal influence with veterinarians of his acquaintance who are eligible to membership to make application for such membership. Also, it is very much desired that each member who decides to attend the Ottawa meeting will, by personal interview and by letter, picture to his fellow members the pleasure and profit to be obtained from attendance at the meeting. If all will join in earnest effort to make the Ottawa meeting a grand success, the most sanguine will not be disappointed.

JOHN J. REPP,
Secretary.

NOTES.

Dr. E. M. Ranck, of the H. K. Mulford Co., Glenolden, Pa., has inaugurated a series of experiments and investigations relative to the organisms giving rise to distemper or rhinoadenitis, ship-fever, and influenzoid conditions among horses shipped from the Western sales centres.

"Some of the Difficulties in Introducing Improved Live-stock Into the State" was the subject of a paper before the Louisiana State Breeders' Association by Dr. W. H. Dalrymple in April, 1902.

For more than fifty years the *Physicians' Visiting List* has been published by the well-known medical book publishers, Messrs. P. Blakiston's Son & Co., of Philadelphia, Pa. The valuable tables it contains for ready reference, and the fact that it is a complete record book for daily practice, and so compact in form, have added each year to its popularity and testimonials as to its worth.

SOCIETY PROCEEDINGS.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

Resolutions adopted at the semi-annual meeting of the Pennsylvania State Veterinary Medical Association meeting, Reading, Pa., September 16, 1902.

REGISTRATION.

WHEREAS, The need of more adequate laws for the regulation of licensed practitioners of Pennsylvania is needed in order that the several laws regulating the same may be more rigidly enforced; therefore be it

Resolved, That we, the Pennsylvania State Veterinary Medical Association in convention assembled, do most earnestly recommend that our State Legislative Committee be instructed to draft a suitable bill for presentation at the coming session of the Legislature, requiring biennial registration of all licensed practitioners; and be it further

Resolved, That we recommend that all such registrations shall be through the State Board of Veterinary Medical Examiners.

D. C. STANTON.

WHEREAS, It has pleased Almighty God to remove from our midst our late colleague, Dr. D. C. Stanton; and

WHEREAS, His association with our organization was marked by a deep and continued interest in all our work, the faithful discharge of every duty to his profession; therefore be it

Resolved, That we deeply mourn his loss and tender to his family our heartfelt condolence in their and our great loss; and be it further

Resolved, That a copy of these resolutions be spread upon our minutes, and also sent to the family of the deceased.

LOCAL COMMITTEE OF ARRANGEMENTS.

WHEREAS, Our semi-annual meeting at Reading has been marked with an unusual attendance and the most widely representative gathering of the profession at any of its semi-annual meetings for the past ten years; and

WHEREAS, The activity of the veterinary profession of the Schuylkill Valley and the members of the profession in this city has given impetus to this splendid gathering; and

WHEREAS, Our entertainment in the city of Reading has been of so pleasant and enjoyable a character; therefore, be it

Resolved, That we extend to the Schuylkill Valley Association and Local Committee of Arrangements our grateful acknowledgment and thankful appreciation of their many courtesies.

W. HORACE HOSKINS,
Chairman Committee on Resolutions.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

THE regular monthly meeting of the Association was held at 169 Paterson Street, Paterson, N. J., on Tuesday evening, November 4, 1902, with Dr. William Herbert Lowe, President, in the chair, and Dr. Alexander Machan, Secretary.

Notwithstanding the fact that it was election night there was a quorum in attendance, the following practitioners being present:

Drs. T. J. Cooper, David Machan, Alexander Machan, John H. DeGraw, W. H. Lowe, Jr., J. Payne Lowe, Passaic; William Herbert Lowe, Paterson.

The minutes of meeting of October 7 were read and approved.

Under "unfinished business" the President reported that he had ordered certificates of membership, which would be ready in the course of a few days.

Secretary A. Machan reported that he had up to date made two payments to Treasurer M. A. Pierce, the first amount being $16, and the second $10, making a total of $26 paid over to the Treasurer. The Secretary further reported that he had $2 in hand just paid him by one of the members, and that all members had paid their dues for this year except four who were not present when he was collecting dues.

Dr. Machan also reported that he had sent invitations to Bergen county practitioners, as instructed by the Association at the last meeting.

The Secretary's report was received and ordered entered upon the minutes.

Treasurer M. A. Pierce not being present, there was no report from that officer.

President Lowe announced that he had had some correspondence with the State Board of Health as to whether veterinarians could have the use of the State Bacteriological Laboratory at Trenton for diagnostic purposes, and he was pleased to be able to give a favorable report, and he hoped that veterinarians would avail themselves of the services of the State Laboratory. Dr. Lowe stated that the work at the State Laboratory is conducted free of charge, and that it consists in examinations for diagnosis in the various affections which are produced by micro-organisms. Communicable diseases of whatever character are investigated, and a diagnosis is made when possible. Investigations of a private nature will not be undertaken at the laboratory, and veterinarians are requested not to send sections of tumors, etc., to the laboratory, as no examinations will be made of such substances, the work of the laboratory being wholly devoted to the public health interests of the State.

Inquiries will be made into the character and purity of the animal products in use in this State for prophylactic and remedial purposes, and also concerning the causes of wholesale poisoning due to unwholesome food, and into the germicidal value of the various substances employed in sanitary operations.

Specimens of tissues suspected to be affected with rabies, anthrax, glanders, and other diseases peculiar to the lower animals can be forwarded in the manner described in Circular 105 of the State Board of Health, issued August, 1902. The ordinary mailing-cases for the other diseases named in the said circular can be obtained in Paterson at the office of the Board of Health or at the drug store of Gurdon E. Pellett, corner of Park avenue and Carroll street. Dr. Lowe mentioned that Dr. Cooper had already availed himself of the use of the State Laboratory by taking a portion of the brain of a horse supposed to have rabies to Trenton, for diagnostic purposes, and Dr. Cooper explained why in this case he expected the result would be negative.

The President stated that he had not been able to attend the annual meeting of the New Jersey Sanitary Association at Lakewood, October 24 and 25, and make the report of the Committee on Animal Diseases and Animal Foods of that organization, of which committee he is chairman.

Dr. Cooper brought up his black-list proposition again, and, on motion of Dr. Alexander Machan, it was laid over until the next meeting.

Dr. Pope telephoned his regrets at not being able to be present.

Dr. William C. Berry formerly of Bloomingdale, now of Haskell, wrote a letter showing his deep interest in the Association.

Dr. Cooper, who had been appointed essayist for the meeting, read an excellent paper on "Milk as a Conveyer of Disease." The subject being an important one, it was fully discussed. Dr. Machan moved that a vote of thanks be given Dr. Cooper, and that his paper be sent to the *Review* and to the JOURNAL for publication. Carried.

The President appointed Dr. David Machan essayist for the December meeting, subject, "Examination of Horses for Soundness."

On motion, meeting adjourned at 10 P.M.

A. MACHAN,
Secretary.

ALLEGHENY COUNTY VETERINARY MEDICAL ASSOCIATION.

A VERY interesting and instructive meeting was held at Dr. J. E. Spindler's office on the evening of November 12th. Members present: Drs. Birch, Boyd, Emery, Hinman, Spindler, Spohn, Taylor, and Waugh. Visitors—Drs. A. T. Roll, of Natrona, and Wm. J. Waugh, of Washington. Routine business was transacted, and committees were appointed for future work, and plans formulated to enlarge the Association and increase its sphere of usefulness, then occasionally hold surgical clinics.

Dr. James A. Waugh exhibited Dr. N. Rectenwald's new steel clamp for removing collar tumors and shoe boils; explained its application and uses, and showed a large shoe boil as removed that day in his practice. Dr. A. W. Hinman made some practical remarks on observation or subnormal temperatures in animals. Hair balls in calves' stomachs proved an interesting subject when Dr. James A. Waugh presented seventeen different-sized and multicolored hair balls, received from his friend, Dr. Benj. Howse, U. S. Vet. Inspector in Allegheny. Dr. John E. Spindler gave an original and unique lecture, entitled "Greasing a Mit," which dealt freely and fully with the baneful practice of tipping coachmen and whacking-up with stable-bosses. Dr. James A. Waugh mentioned an improvement in the surgical technique of Professor C. C. Lyford's operation for the radical cure of bursal enlargements. There was free and friendly discussion of all those subjects presented for consideration. Members are exchanging text-books, and manifest much interest in advancement, and a vigorous professional spirit prevails.

JAMES A. WAUGH, V. S.,
Secretary.

ILLINOIS STATE VETERINARY MEDICAL ASSOCIATION.

THIS Association held its twentieth annual meeting in Exchange Hall, Union Stock Yards, Chicago, Ill., Tuesday and Wednesday, December 2 and 3, 1902. Meeting was called to order by the President, Dr. Joseph Hughes, at 10.30 A.M. Minutes of previous meeting read and approved. The society then listened to the President's annual address.

The following members and visitors were in attendance during the meeting: Drs. R. G. Walker, Joseph Hughes, D. S. Jaffray, Jr., C. F. Greinier, J. F. Ryan, E. L. Quitman, James Robertson, G. A. Lytle, L. A. Merillat, A. H. Baker, Robert Gysell, F. W. Buecher, Chicago; N. I. Stringer, Watseka; L. C. Tiffany, Albert Babb, Springfield; J. F. Pease, Quincy; C. C. Mills, Decatur; W. F. Scott, Oak Park: J. S. Hollingsworth, La Salle; W. B. Lewin, Russell; F. H. Barr, Pana; W. H. Curtis, Marengo; R. W. Story, Princeton; F. W. Kee, Sheldon; W. C. Hannawalt, Sheffield; G. B. Jones, Sidell; H. A. Pressler, Fairbury; J. M. Kaylor, Barry; C. D. Maulfair, McNabb: W. J. Martin, Kankakee; W. C. Galbraith, Wheaton; F. B. Rowan, Belvidere; J. H. Crawford, Harvard; E. F. Beckley, Rockford; James Smellie, Eureka; C. P. Draper, Arlington Heights; W. C. Galbraith, Wheaton; J. T. Nattress, Delavan; W. H. Welch, Lexington; R. F. Hoadley, Yorkville; Thomas P. Brankin, Joliet; C. H. Merrick, Okawville; J. S. Spangler, Aurora. Visitors—Dr. Davis, H. W. Hawley, O. E. Dyson, Dr. Johnson, Dr. Redmon, Dr. Frost, Chicago; S. E. Gates, Blandinsville; also Dr. Brimhall, of the State Experiment Station of Minnesota.

The following applications for membership were received, and on motion the applicants were duly elected: Dr. Wm. W. Welch (Ontario), Elgin; W. C. Galbraith (Ontario), Wheaton; Thomas P. Brankin (McKillip), Joliet; Chauncey D. Maulfair (Chicago), McNabb; E. F. Beckley (Chicago), Rockford; J. S. Hollingsworth (Ontario), La Salle; W. H. Curtiss (Chicago), Marengo; C. S. Hayward (Ontario), Mattoon; J. M. Kaylor

(Chicago), Barry; F. N. Godsall (Chicago), Chicago; C. P. Draper (McKillip). They were recommended by Quitman, Stringer, Gysel, Robertson, Lewin, Martin, Smellie, Pease, and Babb.

Auditing Committee reported Treasurer's books O. K. Treasurer's report showed balance on hand, $83.69. Bills for printing and Secretary's fees were allowed to the amount of $23.65.

Motion carried that Secretary have five hundred copies of Constitution and By-laws printed as revised.

Society proceeded to elect officers for ensuing year, resulting as follows: President, Dr. H. A. Pressler, Fairbury; Vice-President, Dr. N. I. Stringer, Watseka: Secretary, Dr. W. H. Welch, Lexington; Treasurer, Dr. R. G. Walker, Chicago; Board of Censors, Dr. J. F. Pease, Quincy; Dr. A. H. Baker, Chicago; Dr. A. C. Worms, Chicago.

A vote of thanks was tendered Drs. Baker and Hughes for their hospitality.

Dr. Pressler then took the chair and appointed the following committees: Programme—Dr Albert Babb, Springfield; Dr. W. F. Kee, Sheldon; Dr. F. J. Ryan, Chicago. Arrangements—Dr. C H. Merrick, Okawville; J. T. Nattress, Kankakee. Legislation—Dr. E. L. Quitman, Chicago; Dr. James Robertson, Chicago; Dr. W. J. Martin, Kankakee.

Dr. Beckley favored the society with a song.

Adjourned to meet at Champaign, in February, at the call of the President.

W. H. WELCH,
Secretary.

EXPOSITION OF HYGIENIC MILK SUPPLY.

THE United States Department of Agriculture has received through the Department of State notice that a general exposition of hygienic milk supply will be held at Hamburg from May 2 to May 10, 1903. The exposition will embrace eight sections as follows:

SECTION A.—For milk production: (1) Exhibit of limited number of milch cows of known race; (2) stable fittings and implements; (3) regimen and hygienic food; (4) technics of milk, tests, and execution of; (5) management of milk in stable and pastures; (6) personnel of milking and stable (clothing, health, and supervision of the same).

SEC. B.—Veterinary control of the condition of milch cows and of milk; (1) Legislation; (2) management of contagious outbreaks (with demonstration); (3) diseases of milch cows; (4) special diseases; (5) unwholesome food plants and drinking water; (6) secretion through the milk of medicinal stuffs; (7) sanitary management; (8) disinfection of stalls (means and apparatus).

SEC. C.—Conveyance of milk, land, and waterways, railways; conveyance and distribution in cities; (2) cleansing, spinning, cooling, Pasteurizing, sterilizing, and concentrating (condensing) milk; (3) arrangements for measuring and weighing; (4) cleansing apparatus for flasks; (5) machinery for bottling, pouring, and sealing.

Sec. D.—Exhibit of management and sale of milk (wholesale and retail trade), with complete furnishings.

Sec. E.—Milk legislation and administration: (1) Laws, ordinances, decrees, and judgments; (2) police supervision of milk traffic (removal, previous examination, preserving, conveyance); (3) chemical and bacteriological inspection; (*a*) model laboratory, working; (*b*) instruments and tools for laboratory.

Sec. F.—Scientific: (1) Means of instruction, with scientific demonstration; (2) scientific instruments and tools for milk laboratories; (8) literature, statistics, and graphic exhibitions.

Sec. G.—Milk preparations: (1) Condensed and prepared for long keeping for use in the army and navy; (2) milk for infants; (3) for therapeutic purposes; (4) other foods and preparations produced from milk.

Sec. H.—Machinery and apparatus for the treatment of milk in the household.

The cost for space for exhibits on the main floor will be $2.38 per square meter (1.196 square yards); side rooms, $1.19, and in the open air, 71 cents. An additional charge of 10 to 50 per cent. will be made for sites with four sides exposed, or with three sides exposed, from 5 to 25 per cent.

Intending exhibitors should make application for space to the Geschaftstelle in Hamburg, 6, Kamp Strasse 46.

Articles for exhibition must be sent and removed at the expense and risk of the exhibitor.

ASSOCIATION MEETINGS.

The Schuylkill Valley Veterinary Medical Association will hold their semi-annual meeting at Reading, Pa., December 17, 1902. Papers will be presented by Dr. Leonard Pearson, Philadelphia, Pa., on "The Veterinary Teacher and Practitioner;" Dr. S. G. Burkholder, Rothsville, Pa., "An Historical Essay, Relation of the Veterinarian to the Medical Profession;" Dr. E. M. Ranck, Glenolden, Pa., "Action of Sera in the Blood;" Dr. D. E. Kohler, Boyertown, Pa., "Reports of Cases;" Dr. G. A. Wehr, Denver, Pa., "Pleuropneumonia."

The annual meeting of the Veterinary Medical Association of New Jersey, at Trenton, in January, is sure to attract a very large attendance, and the programme promised fully warrants the outlook.

The Illinois Veterinary Medical and Surgical Association will hold their fourteenth annual meeting at the St. Nicholas Hotel, Decatur, Illinois, January 14 and 15, 1903. The programme will include papers by Dr. W. J. Martin, Kankakee, "Veterinary Dentistry;" Dr. J. M. Reed, Matoon, "Retained Fœtal Envelopes;" Dr. C. A. Hurlbutt, Stonington, "Esophageal Obstruction;" Dr. S. H. Swain, Decatur, "Persistency of the Urachus;" Dr. V. G. Hunt, Arcola, "Prolapsus Uteri;" Dr. John Osborne, Nokomis, "Vegetable Poisoning, Milk Sickness;" Dr. N. P. Whitmore, "Hypodermic Stimulation;" Dr. F. Glassbrenner, North Alton, "Foot Lameness;" Dr. D. K. Goodale, Mt. Vernon, "Osteoporosis;" Dr. J. W.

Marsh, Illiopolis, "Parasitic Bronchitis;" Dr. R. W. Braithwaite, Champaign, "Horseshoeing;" Dr. I. M. Luzader, Nokomis, "Caponizing," besides other reports of cases.

The students of the San Francisco Veterinary College have organized and will maintain a Veterinary Medical Association in connection with their college work.

PERSONALS.

Dr. Ira G. Coble, of Berwick, Pa., in connection with his practice conducts a large livery and boarding stable.

Dr. S. C. Babson, of Kennett Square, Pa., a graduate of the Veterinary Department, University of Pennsylvania, Class of 1902, is taking the Pasteur treatment for rabies incidental to an abrasion on the hand while holding an autopsy on a rabid dog.

The recognition of Dr. W. S. Kooker, of Philadelphia, and his election to the Presidency of the Keystone Veterinary Medical Association is a well-merited tribute to a faithful devotee of the profession.

Dr. J. C. Burneson, formerly of the Ohio Agricultural Experiment Station, Wooster, Ohio, is now a member of the Bureau of Animal Industry Inspection force at the G. H. Hammond Co., Hammond, Indiana.

Dr. H. A. Christman of the Bureau of Animal Industry, and located at Cincinnati, Ohio, was a visitor to Philadelphia early in October.

Dr. James Marshall, of Philadelphia, and W. L. Rhoads, of Lansdowne, Pa., were active in the Road Drivers' Parade in Philadelphia, in October.

Dr. I. W. Zellars, of Harrisburg, Pa., was a visitor to Philadelphia in October. Dr. Zellars is very much interested in the enforcement of the State laws regulating veterinary practice.

Dr. G. H. Welliver, of Bloomsburg, Pa., in connection with his practice conducts a large boarding and livery stable, and deals extensively in horses.

Dr. L. Van Es, of Mobile, Alabama, has accepted the chair of veterinary science at the North Dakota Agricultural College, and will enter upon his work there about January 1, 1903. Dr. Van Es is well equipped to fill the position to which he succeeds.

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VITALITY AND IMMUNITY.

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PREVENTIVE medicine is the art of preserving or prolonging life by the prevention of disease. As in the case of all other medical science, during the second half of the last century, a radical change ensued through discoveries following the improvement of the compound microscope.

Fifty years ago it was generally assumed that after death flesh decays from intrinsic causes. The life of the individual was considered a complicated process the nature of which involved a termination by death, and it was taken for granted that, as soon as life was extinct, the body disintegrated. The only feature of immortality which was conceded to the body was its capability of producing other bodies of the same kind. It was admitted that the number of generations was unlimited and could be terminated only by external causes. The individual, however, was pronounced to be absolutely and invariably doomed to die, not only from external causes, but as a natural sequence of construction.

Pasteur and his school have since demonstrated that flesh does not decay from intrinsic causes, but through the influence of invading germs, and can be preserved by their exclusion. An entirely new branch of the medical science, namely, bacteriology, was developed, with the result that in a large number of diseases it was demonstrated that they originate from the invasion of germs and can be prevented by guarding against them.

While Pasteur successfully exposed the rôle of germs, another great French savant did pioneer work in the metabolism of the body. Brown-Séquard, the discoverer of the inner secretions, first conceived the idea that senility might not be a natural consequence of the normal metabolism. He pronounced it a disease which is caused by the exhaustion and might be treated successfully by the replenishment of certain products of animal life. He, too, created a new branch of the medical science, namely, organotherapy. It is young, but growing rapidly, and bids fair to become the nucleus of therapeutics.

Preventive medicine is as old as history. Its scientific foundation, however, was created only quite recently by Pasteur and Brown-Séquard. Before their time it consisted only of common-sense regulations how to keep the body clean and the food pure, to isolate contagious diseases, and of attempts at restricting the excessive use of intoxicating drinks. It was not so much in the hands of medical men as of jurists and clergymen. In ancient times the clergy controlled more or less all branches of medicine and used their influence for the enforcement of sanitary measures. Naturally, they took an especially great interest in the promotion of temperance, as they still do to-day.

Concerning the efforts of the clergy to wean the world from intoxicating drinks the writer has observed a strange coincidence. The ancients had only fermented drinks, namely, wine and beer. As far back as the days of Pharaoh, the Egyptians shook the dice for a glass of beer. All the ancient nations, at one time or another, found it necessary to regulate by law the sale of wine and beer, but they never thought of prohibiting drinking absolutely. The first man who conceived such an idea was Mohammed. He knew only of wine and forbade his followers to drink it. The Arabians, however, were good chemists, and soon discovered that by distillation something could be made out of wine which, though not wine, had the same effects. Thus the invention of distilled liquors which has proved a curse to humanity, was the direct consequence of the first prohibition law.

The first physician who made a genuine medical discovery in the line of preventive medicine was Edward Jenner. In his work, *An Inquiry into the Causes and Effects of the Variolæ Vaccinæ,* which he published in 1798, he furnished conclusive proof that inoculation with cowpox protects against smallpox. Long before Jenner's day it was known that a similar result could be obtained by inoculation from a smallpox pustule in an advanced stage. This method, however, was prevented from coming into general use by the danger it involved of spreading the very disease which it was intended to guard against. Jenner made his discovery accidentally. He could not give a theoretical explanation of it. He only recognized its enormous practical value and made it the object of his life to introduce it in larger circles.

Only to-day is the theoretical explanation of Jenner's discovery dawning upon our minds. The puzzle is far from solved, but our knowledge is growing daily. The start was made by Pasteur. His work led, in England, through Lister, to discoveries which revolutionized surgery; and in Germany, through Koch and his school, to the invention of entirely new methods of treating diseases specifically.

It would be beyond the narrow limits of this paper to give even the shortest synopsis of the present status of bacteriology. The writer only wishes to reproduce before the reader's mind a few well-known facts in the light of preventive medicine. Old facts in a new light assume a new aspect.

The line between preventive and curative measures is naturally not very closely drawn. This shows itself in the different methods adopted in dealing with germs. They are:

1. Methods of preventing their entrance into the body. This, of course, is one of the main branches of preventive medicine.
2. Methods of destroying the germs in the body, or of expelling them, or of counteracting the effect of their depredation. These measures are more curative than preventive.
3. Methods of placing the body in such a condition that germs cannot do any harm. This is accomplished through immunization.

Immunity means capability of exposing one's self to infection with impunity. The word immunity comes from the Latin word immunis, which meant a man who was excused from meeting the pecuniary and other obligations of a citizen. These obligations were called munia. Only those who met them were full members of the communitas. The immunis was only an honorary member, free from the obligations and void of the rights of citizenship. He was, in ancient Rome, as well protected against the collector of taxes, as the immune colored soldier, in our war with Spain, was protected against yellow fever.

Immunity against a certain disease may be congenital or acquired. It may be absolute or partial, so that only a mild case can be contracted. The susceptibility of different animals to a certain disease vary greatly. For instance, mice and rabbits are the most susceptible to streptococcus pyogenes; dogs and cats in a lesser degree. Still less susceptible are sheep and goats; and the horse and ass the least of all. Still, there is no animal absolutely immune against streptococcus pyogenes, nor can complete immunity against it be acquired. A man who has had a case of smallpox can hardly contract it again. An infection with streptococcus pyogenes, however, does not protect against another infection of the same kind.

The most common germs are those which produce inflammation and putrefaction. Other germs, for instance the typhoid bacillus, are capable of producing inflammation. As a rule, however, it is caused by streptococcus and staphylococcus pyogenes. If the typhoid bacillus causes an abscess, these two cocci will soon put in their appearance. They follow the typhoid bacillus, but the typhoid bacillus does not follow them. And wherever the cocci or any other germs have been active for any length of time, the germs of putrefaction will also be there.

As soon as the cocci invade the body, the leucocytes rush together from all sides. Some try to kill the intruders. Others liquefy the tissues around their colony and try to make an opening through which the enemy can be ejected. Others again build a wall around the cavity which their brethren have made, to protect the balance of the body against further invasion and to furnish the material for repair of the damage done.

The success of the cocci depends upon their virulence, which is very variable and in its turn depends upon the conditions under which they had been living prior to attacking the body. If the virulence be great enough, the cocci will conquer the fighting, the liquefying, and even the wall building leucocytes and spread all over the body. They will eventually cause death under the symptoms of what is known as pyæmia. If the conditions are favorable to the leucocytes, an abscess will be formed under the old-time symptoms of tumor, rubor, calor, dolor, and in the end by its opening with or without the surgeon's knife, the incident will close with a discharge of pus *bonum et laudabile.*

If, however, for some reason the pus cavity cannot be evacuated; if neither the leucocytes are strong enough to do their part, nor the cocci able to break through, then both will fall victims to the putrefactive bacteria which at this time put in their appearance. The pus *bonum et laudabile* will change to pus *malignum.* It becomes a foul-smelling mass in which poisonous substances develop. The result will be an incapsulated abscess. Its cavity is lined with a so-called pyogenic membrane. The principal feature is the absence of oxygen. The incapsulated abscess cavity resembles an old tomb-vault. Its lining membrane shows no healthy red granulations from which the pus could be easily removed. It has a bluish and dirty greyish appearance and the cheesy pus is firmly attached to the granulations by a felt-like mass of coagulated fibrin. This is also in a putrid condition. The outside of the pyogenic membrane looks dark bluish and, if you cut into it, dark blood escapes which the people of all times called "bad blood." The cavity may be connected with the outside world by a tortuous canal, a so-called fistula, without otherwise changing its condition.

Reabsorption from such a cavity causes a condition which is known as septicæmia. It may also lead to death from exhaustion and amyloid degeneration of vital organs.

An incapsulated abscess need not be very large. It can be of very small size and even without a cavity. It can be a small nodule of granulating tissue with a slimy or cheesy centre where the intruded bacilli lead a saprophytic life. This is the way in which germs of putrefaction establish themselves in our bodies.

In the same sense, the leucocytes are the soldiers of the body, the lymphatic glands are its military posts. They are regularly garrisoned with leucocytes. Everything that enters into our system, before being admitted to the blood, has to pass through some of these posts. So do the invading germs. The virulent ones will produce suppuration; a so-called bubo. A good many will be destroyed by the leucocytes. Some, however, will succeed in establishing a permanent home right in the headquarters of the enemy; a constant danger, a detriment to the body. They produce what the physicians of former ages called dyscrasia. It occurs especially in children where the thus affected and therefor enlarged lymphatic glands are the principal symptom of scrofulosis.

As we cannot make our patients immune against the pyogenic and putrefactive germs, we protect them against infection of the wound on the operating-table by perfect cleanliness. The air of the operating-room, the surfaces of the bodies of the operator as well as the patients; even the breath of the operator, all contain cocci. Everywhere within reach of our patients the cocci must be killed or removed or prevented from entering the wound.

The condition of the wound thus produced has been improperly called aseptic. The surgeon takes his preventive measures, not against sepsis, but against inflammation. Healthy blood and tissues have a slight antiseptic power. The anaërobic germs of putrefaction cannot withstand the oxygen of the tissues. The tissues, however, have not the power of destroying cocci. The leucocytes must do it! The surgeon, however, wants the leucocytes to attend to the healing of the wound, and he wants only so many to come as there are necessary to do this. He wishes to avoid the rush of leucocytes which is produced by the cocci and might lead to suppuration. Therefore, he keeps the cocci out of the way. The presence of a few germs of putrefaction could do no harm. The tissues would dispose of them quietly and quickly.

Recently it has become customary to say "sterile" instead of "aseptic." Neither is correct. Sterile, in opposition to fertile, means that the ground is in such a condition that nothing can be grown in it. The condition under discussion, however, does not compare with sterile, but rather with fallow ground. On fallow ground growth is prohibited only by the absence of seed. The proper term for the condition of a perfectly clean wound would be "germless" or "free from germs."

The distinction between the different, not only varieties, but even species, of bacteria is not so well defined as one might suppose. In every case different species and varieties are to be found mixed together. The essential types which they are named after are always well represented; but one finds as well many indistinct forms of transition concerning which there is doubt as to which side they belong to.

There is no coccus better characterized than the gonococcus, and it has features which are of special interest in the light of preventive medicine. It has never been found outside of the human body, except on such things as dirty linen, which it reached directly from its regular habitat. Like the typhoid bacillus, it cannot exert its energies on any other but the human body. All animals have absolute congenital immunity against both, but man cannot acquire immunity even against the gonococcus. The typhoid bacillus, having punished its victim long enough, leaves it in a condition of immunity against another infection. The gonococcus may reaffect, no matter how many times a man has already had gonorrhœa. The immunity of animals against both of these germs has in some instances been conquered by pure cultures of germs raised under such conditions as tend to increase their virulence.

Every physician meets once in a while with a case of gonorrhœa which makes him wish that another kind of origin of this disease, besides the only one now recognized, might be discovered. And the possibility of this cannot be absolutely denied. In an otherwise healthy vagina sometimes diplococci are found which so closely resemble the gonococci that the distinction can only be made through certain methods of staining. It has been shown that different varieties of staphylococcus change one to another; why should not some of these non-virulent diplococci, under certain conditions, change to gonococci? The writer believes in evolution, also of germs and heartily endorses the ideas which Lydston expresses in a paper with the title "The Evolutionary Aspect of Infectious Diseases," etc. (*Journal of the American Medical Association*, 1902, Nos. 20 and 21), especially when he advocates the "spontaneous generation of new and virulent properties in hitherto innocuous germs."

(To be continued.)

Dr. W. G. Benner, of Doylestown, Pa., who recently entered the Bureau of Animal Industry, has been stationed at Chicago. Ill.

AN HISTORICAL ESSAY ON THE RELATION OF VETERINARY MEDICINE TO THE MEDICAL PROFESSION.

By S. G. Burkholder, M.D., M.D.V.,
ROTHSVILLE, PA.

We do not possess a concise history of the remote origin of the practice of medicine or the healing art, but we have every reason to believe that Egypt is the country in which all the arts of civilized life including medicine were first cultivated with any degree of success.

Moses, in his writings, alludes to the practice of medicine among the Jews, but as far as we can learn, the privilege to practice was confined to the priests whose treatment consisted principally of promoting cleanliness and giving hygienic and spiritual advice.

The early history of medicine in Egypt is very incomplete and rather legendary. We will have to turn to Greece for the first substantial pillar upon which to base the origin and foundation of the medical and veterinary sciences of to-day.

History tells us that the Grecians were skilled in the arts and sciences eight or ten centuries before the Christian Era, and that they practiced medicine on both man and animals with marvelous results.

Chiron, of Thessaly, a descendant of the race, is recorded to have been the most skilled in the practice of the healing art, and paid equally as much attention to the equine as to the human race.

Æsculapius, another Grecian, who later, according to the legends, became the god of the healing art, and is really the founder of the modern school of medicine, was educated by Chiron and followed his footsteps. Thus we see that the patron saint of our physicians of to-day had for his preceptor a practical veterinarian as well as a practical physician. Æsculapius became a great teacher and dissected animals for the instruction of his pupils in the medical art as he practiced it.

By looking up the followers of Æsculapius we find that they all practically followed his methods for several centuries.

Among his predecessors a few gained some prominence. Among them being Erictheus, Varro, Xenophon, Calumella, Homer, Democratus, and others until we finally come down to Hippocrates who was the seventeenth or eighteenth in descent from Æsculapius. He was the most celebrated physician of antiquity, a great writer, and is to-day referred to as the father of medicine.

Thus far they all based their anatomical knowledge upon dissections of animals, and apparently gave just as much attention to the diseases of animals as to the diseases of man.

Calumella and Hippocrates wrote exhaustive treatises on the healing art as applied to animals. So you see Hippocrates might just as properly be designated father of veterinary medicine as father of medicine.

Hippocrates was so immeasurably superior to his contemporaries that it seemed to have acted as a check to further attempts at improvement for several centuries.

No real progress was made, especially in anatomy, owing to the researches being confined to animals, until the time of Erasistratus, about 250 B.C., who was the first to dissect human bodies.

Henceforth up to the beginning of the Christian Era no perceptible advancement is evident.

During the first part of the Christian Era the dissection of human subjects was forbidden under heavy penalties. The medical profession was divided into four or five differents sects who were constantly disputing with one another and no material progress was made.

During the latter half of the second century of the Christian Era, Galen, a very celebrated physician and great writer, loomed into prominence. He was a great anatomist and in his studies he dissected apes as being the most like human subjects.

For the next thousand years the advancement in the art of medicine was very slow. In fact, Galen reigned supreme throughout the civilized world until within the last three hundred years.

No human subjects were openly used for dissection until the time of Frederick II., King of Sicily, about 1200 A.D. He passed a law prohibiting anyone from practicing surgery without having first acquired some knowledge of anatomy by dissecting human bodies. His example was followed by others throughout the civilized nations. Thus it appears that up to the time of the Christian Era the art of healing was studied and practiced for the relief of the brute creation as well as of man, all being treated on the same principle by the same physicians.

About 300 A.D. Vegetius, also a Greek disciple of Chiron, collected and revised all the works on the art of healing animals that had been published up to that time.

We find no evidence that the practice of veterinary medicine existed as a distinct science previous to this time, but we do find that those versed in the art of healing who principally confined their efforts to the care and treatment of the horse held honored positions and recognized ranks in the Roman army several centuries before the beginning of the Christian Era. The horse was an indispensable factor in the art of warfare and those who looked after the medical needs of this noble animal had conferred upon them the foremost titles and honors of the land. This appreciation of the services of the veterinarian was not confined to the Roman Empire, but later the French, the Normans, and the English held them in high esteem and conferred upon them similar titles of honor.

The early history of medicine seems to prove that the original pioneers of the healing art and their followers treated all ailments of both man and beast with equal consideration and skill. The two distinct professions as they appear to-day, originated together, grew up together, were advanced and amplified by the same men, and were one and inseparable for a period of at least 1000 years. After the dissection of human bodies by the physicians and their students received legal sanction, and various medical schools were established, the followers of the medical practice confined themselves to the human family more and more completely until finally the poor beast was apparently dropped from their consideration altogether, so far as investigating and treating their diseases was concerned.

The practice of the healing art as applied to humanity became a distinct branch of science and grew gradually but slowly until the latter part of the eighteenth and beginning of the nineteenth century. The nineteenth century may be considered as the epoch of physiological research and clinical observation.

We are getting ahead of our story. We left the animal creation uncared for, from a medical point of view, in the early part of the Christian Era. They were neglected by those best skilled in the art of ministering to their ailments and fell into the hands of an army of ignorant and superstitious rubbish.

Henceforth for several hundred years might be termed the dark age of the veterinary science. But thanks to an omnipotent Providence, during the latter half of the eighteenth century, out of the oblivious sea of illiteracy and superstition the veterinary profession has once more sprung and with advancing steps has displayed energy, perseverance, and skill, until to-day it is again working on a common plane with the medical profession.

The position held by the veterinarian and the duty he should strive to perform should not redound simply to the economic advantages of the stock owner; but his aim should be to annihilate diseases from the lower animals many of which are transmissible directly to man, thus preventing transmission of contagious and parasitic diseases and protecting human life. This is far more important than the treatment of disease.

While the physician is the alleviator of disease, the veterinarian is the preventer of its occurrence. He is the safeguard to public health. The responsible position held by the veterinarian is not appreciated by the laity, nor even by many physicians, but the time is not far distant when his real value will be recognized and he will be an indispensable factor to every community and work in harmony with the physician in his efforts to relieve suffering and save human lives. The veterinary profession should be and will be represented in every town, city, county, State, and national board of health. The amount of physical suffering and death in man due to direct transmission from corresponding diseases among our domestic animals is not yet universally realized. Every medical school worthy of the name will in the near future include in its college curriculum a chair of comparative pathology and comparative medicine. Then, and not until then, will the exalted position of the veterinarian be generally recognized.

Let us enumerate a few of the more important diseases common to both animals and man and thus bring out more strongly the relation the veterinarian bears to the medical profession.

1. Anthrax, though not so common now as formerly, may be transmitted to man through an abraded surface of the skin or mucous membrane. It gives rise to a local lesion at the seat of inoculation. It may form a papule, rapidly becoming a vesicle, form a scab and dry off in a few days. It may become pustular, surrounded by an inflammatory and indurated area giving rise to very distressing symptoms, both local and constitutional, and lead to a large slough, and the patient recover. Or the infection may become general and the patient succumb. Thanks to the advancement of the veterinary science the disease is kept under control and will finally be annihilated by means of successive animal inoculations of an attenuated virus.

2. Actinomycosis is another disease sometimes found in man. This is usually transmitted directly or indirectly from diseased cattle. The discharge from the local abscess on the animal's jaws may come in contact with an abraded surface or mucous membrane of man and give rise to the characteristic local lesion. Stablemen are often in the habit of chewing the end of a straw while in the pursuit of their duties, which, should it happen to be contaminated with the virus, may be the means of inoculating the man. It is an undecided question whether or not the consumption of meat from animals afflicted with this disease has ever been the source of the transmission.

3. Glanders, a disease equally fatal to both the human and equine race, is at present rather rare in man. This is due to the fact that the veterinarian recognizes it in the horse in the early stages and the animal is properly isolated and destroyed, which prevents further infection.

4. Tuberculosis, the destroyer of thousands of human lives every year, is too well known to need any discussion in this article. Suffice it to say the only way to lessen its career of destruction is by a

concerted and harmonious effort of both the veterinary and medical professions. The disease is undoubtedly transmissible from animals to man (Professor Koch's theory notwithstanding) and the only way to get it under control is to prevent as far as possible every source of infection. This is not an easy matter and will take many years to accomplish. Both professions will have to be thoroughly organized, for our enemy the tubercle bacilli are a stealthy and treacherous foe. They do not attack us with the sound of the trumpet and roll of the drum, but swoop down upon us in darkness and in silence, and suddenly appear in our midst when least expected. Owing to the latency of the disease they provoke and the absence of outward manifestations, they are a potent factor in the propagation of the infection and make a most formidable antagonist.

The only way to subdue the enemy is to organize a powerful garrison of physicians thoroughly disciplined and strongly fortified to vigorously fight the enemy already in our midst, and prevent reinforcements from the bovine and other nations of the animal tribe by a dense line of vigilant veterinary pickets.

Some of the parasites causing disease in animals require man as a host before they can complete their cycle of existence, and very unwelcome guests they prove to be. Among the parasitic enemies may be mentioned the cysticercus bovis and the cysticercus cellulosa, who, if they gain access to the alimentary canal of man unharmed will develop into the tænia saginatta and tænia solium, respectively. These, while they do not cause the death of their hosts directly, give rise to a great deal of discomfort and reduce his general strength and resisting powers, so that he yields more readily to unfavorable influences which, if not relieved, will shorten his life indirectly.

Another parasite more destructive than either of the above two occasionally finds man a very unwilling but submissive entertainer. This is the trichina spiralis. We usually find them in the cystic form in the nucleus of the pig where they remain, and if their host is allowed to live long enough they finally die and undergo calcareous degeneration. If, on the other hand, the host is killed while the parasite is still alive and his carcass is consumed by man, they either succumb to the excessive heat the pork is subjected to before it is eaten, or if they escape that ordeal, they gain their liberty in the alimentary tract of their second host or man. Here they develop, cohabit, propagate, and die, leaving a small army of young parasites, who at once begin to migrate to the muscular portion of the human body. This process of migrating causes the host an unendurable amount of agony, to which he often succumbs.

Here, again, we find our benefactor the veterinarian on picket duty, carefully guarding the approach of the parasitic enemy with fixed bayonets ready to slay the death-dealing foe thus preserving the comfort, if not saving the life, of his fellow man.

The inspection of animals in the public stockyards and abattoirs by the Bureau of Animal Industry is instrumental, no doubt, in saving the lives of a number of people annually by preventing diseased meats from being consumed by the general public and prohibiting diseased animals from being allowed to mingle with healthy animals and man, thus spreading the disease.

The system is defective only in that it is not extensive enough, which is due principally to the lack of legislative support.

All animals whose carcasses are used for human food should pass a rigid ante-mortem and post-mortem inspection, and those which are kept for their milk, breeding, and other purposes should be thoroughly inspected by skilled veterinarians at stated periods, say every six months, and certificates of soundness should be issued for each animal thus inspected and passed as sound. In this way tuberculosis and kindred diseases could be finally blotted out among animals, and by strictly observing the laws of hygiene it would be a comparatively easy matter for the medical profession to exterminate some of these diseases among the human family. Without the assistance and co-operation of the skilled veterinarian backed by legislative support, these transmissible diseases can never be eradicated. It is only by the united efforts of the veterinarian and medical professions that these results may be accomplished.

The significance of the veterinarian's position as a preventer of disease among man and animals, and his intimate relation to the medical profession will become more evident year by year until finally history will repeat itself and the two medical sciences so closely related will be merged into one, when all prospective practitioners will be educated in the same school of medicine, the veterinary science simply becoming a branch of general medicine.

ARECOLINE HYDROBROMATE.

By Walter Lincoln Bell, D.V.S.,
BROOKLYN, N. Y.

Arecoline is the alkaloid of areca catechu, L. (Betel nut). The hydrobromate is the only form in which it is used. This occurs in white crystals, soluble in water and in alcohol. Prof. Froehner states that as a laxative it is ten times stronger than pilocarpine and fully as powerful as eserine, while its action is equal to about 1000 times its weight of powdered areca nut. On the strength of his experience, he regards grs 1½ (equal to 3¼ oz. tincture areca nut) as the maximum dose for horses, and grs. 4 as the maximum dose for oxen.

This drug came to me described as an active sialagogue, rapid diluent, and evacuant of the bowels; indicated in acute indigestions (colics), intestinal obstruction and laminitis, also recommended as a tænifuge; contraindicated in nervous colics, pregnancy, and pharyngitis.

Early in the present year my attention was called to this drug by Dr. H. H. Newcomb, who had just returned from South Africa, where he acted as Veterinary Lieutenant for the British Army. He stated that severe cases of acute laminitis were rendered serviceable in three days by the daily hypodermic injection of arecoline for that period. This, to me, seemed almost impossible, but, as Dr. Newcomb's advice had been of much benefit in previous instances, I secured some tablets of the drug, with the determination of giving it an early trial. My first experience was so satisfactory that I continued its use and have adopted it altogether as one of the most important therapeutic factors in treating this form of disease.

Its rapid action as an evacuant induced me to try it on a patient with acute indigestion and tympanites. I found that it assisted very materially in restoring the animal to early use and entire relief of the acute attack. Since then I have used it very frequently in "colics," and have found that it has all the good qualities claimed for eserine and pilocarpine, alone or combined, barium chloride, etc., but as yet have seen none of the dangerous actions—*i. e.*, fatal dyspnœa, rupture of the diaphragm, stomach, or intestines that sometimes follow the use of eserine and pilocarpine.

I have also used arecoline hydrobromate in five cases of azoturia in conjunction with sedatives and diuretics, and have secured that number of successful cures. While I do not think I have found a specific for this unwelcome disease, still the rapid dilution and expulsion of the intestinal contents, the diaphoresis and profuse excretion of saliva, thus calling upon some of the most important organs of elimination, theoretically, and, as it seems in my experience, practically, has been of decided benefit.

In referring to this drug, it seems of much importance to emphasize the rapid and profuse salivation that follows, usually within five minutes of its hypodermic use. The animal opens his mouth and a large quantity of saliva drops out, and from this time the salivation continues; in some cases for an hour, gradually lessening in quantity.

In laminitis I make a daily injection of one to one and a half grains of arecoline dissolved in one drachm of boiled water that has sufficiently cooled for hypodermic use, and usually select a spot on the neck that the mane will cover, injecting it slowly into the subcutaneous tissues. In conjunction with this I remove the shoes, encase the feet in a thick covering of oakum that has soaked in hot water; this is held on by a burlap and cotton bandages which cover the entire dressing. Then, if possible for the horse to stand, keep him standing in hot water purified with sanitas, creolin, or carbolic preparation during the day, leaving small powders of potassium nitrate to be given every four hours day and night to insure attention to the animal at least that often, giving directions that the feet be immersed in hot water every time a powder is given during the night, the dressings to remain on until I remove them. This procedure I have found will render the animal fit for moderate service after the third day in many instances, and not later than the fifth day in any case so far. Previous to using arecoline I could not secure such good results, though the other parts of the treatment were as rigidly insisted upon.

In azoturia I follow the same general rule, using one to one and a half grains of arecoline in hot aqueous solution daily for three injections, combined with sedatives and diuretics.

Acute indigestions ("colics"), whether accompanied by flatulence or not, are greatly benefited by one-half to one grain in one drachm of hot water. This with hot rectal injections of water with a small amount of glycerine added, used through a large sized fountain syringe and giving sedatives such as chloral hydrate, cannabis indica, etc., I have found very successful as far as any one treatment could be in relieving many cases of "colics," and the arecoline seems to exert a very beneficial action where there is considerabe gastric disturbance. Shortly after the onset of salivation the animal passes wind, soon feces are evacuated, and both continue to pass for some time; the animal secures relief, is out of pain, and the acute attack is over. As arecoline adds considerably to the intestinal pain and inconvenience for a short time, I usually administer the sedative previous to injecting the drug, the quantity of sedative governed by the amount of pain I first find the animal in.

In conclusion I would say that I find it best to use hot water for the hypodermic solution, not only for the aseptic properties, but that it makes a quicker and more thorough solution; also to clean the needle as soon as through with it, as otherwise it becomes entirely stopped up. This is especially true if cold water is used.

Secretary Waugh, of the Allegheny County Veterinary Medical Association, reports the society in active work and planning for aggressive work during the winter season.

HEMORRHAGIC SEPTICÆMIA.

By M. H. Reynolds, M D., V.M.,
UNIVERSITY OF MINNESOTA, ST. ANTHONY'S PARK, MINN.

Whether it is proper to speak of this as a disease or as a collection of diseases due to identical or similar germs may possibly be questioned, but, for the present at least, and until we have more light on the subject, we may speak of it all as hemorrhagic septicæmia. This disease is very interesting on account of several peculiarities. It is interesting because of its protean form; it is interesting because medical treatment, so far as we know, is absolutely useless and hopeless. We are utterly helpless in the matter of prevention because we have practically no information as to the method of infection or method of spread. Those who have had a chance to study the various outbreaks in Minnesota have been quite unable to trace any connection between one outbreak and another, or to trace a previous history for any given outbreak. It is proving interesting to those members of the veterinary profession who have been so fortunate or unfortunate as to come into contact with it, because of the extreme difficulty of making ante-mortem diagnoses. In some outbreaks that have been carefully studied, ante-mortem diagnosis for the first case at least was apparently impossible; but, on the other hand, there have always been plenty of opportunity for examinations post mortem, and here the evidence is usually clear.

There is a very practical side to this disease, especially when considered from the farmer's standpoint. It appears suddenly and under all sorts of conditions; a number of animals, usually a large proportion, die, and the disease disappears as suddenly as it came. The owner has lost a certain amount of property in live stock, without a trace of information as to whence the disease came or how soon the visit may be repeated. The owner would be especially interested in knowing the method of infection and the possible agencies through which his herd may receive a reinfection. If hemorrhagic septicæmia, like glanders, comes by a specially introduced infection, then he has a certain proposition to face. If, on the other hand, the micro-organism of hemorrhagic septicæmia, which resembles in all laboratory peculiarities the germs of swine-plague, are commonly present in less virulent forms or present under conditions where there is but limited opportunity for their development and the production of disease, then the farmer may expect an outbreak of it at any time and, so far as he knows, under any conditions, and he has no means of guarding against it—a quite different proposition.

Etiology. The specific cause of this disease is apparently bacillus bovisepticus, which cannot be distinguished from the bacillus of swine-plague by cultural or morphological characteristics. How this micro-organism spreads or how it gains entrance into the animal body is not known, but at present we suppose that the entrance may be affected by inoculation through the respiratory or the alimentary mucous membrane.

History and Development. The onset is usually sudden and most unexpected, and yet in some recent outbreaks of disease in which the presence of the micro-organism was demonstrated, the onset was quite slow and the cases were distinctly chronic. Hemorrhagic septicæmia is probably more prevalent than is generally supposed, and it is undoubtedly true that a great many outbreaks of this disease have been incorrectly diagnosed as anthrax, symptomatic anthrax, infectious cerebrospinal meningitis, cornstalk disease, and very possible as parturient paresis. From reports that have appeared in the veterinary journals at various times it is very evident to those who have had opportunity to study this disease that outbreaks of hemorrhagic septicæmia have appeared in a great many different sections of the United States at least, and have been incorrectly diagnosed. Cases which have been described in the East as cerebrospinal meningitis have been very plainly hemorrhagic septicæmia, and this is also true of cornstalk disease in the West.

Season and climatic conditions apparently have nothing to do with the prevalence, virulence, or disappearance of this disease. The mortality for the past few years during which it has been studied in Minnesota has been extremely high, the cases all ending abruptly in death, with the exception of a few outbreaks where the cases were chronic. These tended to disturb our supposed information concerning the disease, particularly in reference to its rapid and invariable fatality.

More recently an outbreak appeared under the observation of the writer where all cases gave uniformly clear ante-mortem symptoms of cerebrospinal meningitis, and yet examinations post mortem revealed in addition to the expected lesions of cerebrospinal meningitis the characteristic hemorrhages of hemorrhagic septicæmia, and the organism which is supposed to be the specific cause of the disease was demonstrated beyond reasonable question. (See "University Experiment Farm Outbreak," provisional report of Dr. Wesbrook.) In this outbreak, as in all the earlier ones, the mortality was very high; nine animals sickened and nine died.

Symptoms. The writer has had the privilege of studying closely the development and full history of about twelve cases. The temperatures were uniformly normal and subnormal, except in two cases, where the temperature rose rapidly just before death. There was nothing in the nervous disturbances that was especially diagnostic, except that in several cases the skin has been hypersensitive. The subjects have usually been disinclined to move about, apparently because movement caused pain. In an outbreak which occurred at the University Experimental Farm, and which came under the writer's daily observation, the prominent symptoms in all cases were those of cerebrospinal meningitis, but it would be very misleading to suggest that these nervous disturbances are characteristic of hemorrhagic septicæmia. Local lesions which correspond to the tumors of anthrax and symptomatic anthrax are very limited or wanting. The urine in many cases has been scanty or blood-stained, and this is also true of the bowel discharges. The examinations post mortem are very much more definite and satisfactory. The blood is apparently normal. Subcutaneous hemorrhages are common and vary greatly in size and intensity; in some cases they are large and the hemorrhagic condition is marked. In other cases the hemorrhages are punctiform, scattered, and few in number. The hemorrhages may appear almost anywhere in the subcutaneous tissues or involve any of the viscera. The spleen is not enlarged, but there may be hemorrhages on the surface. The hemorrhages usually have very sharply-defined borders and are easily recognized as hemorrhages. The serous membranes frequently show small hemorrhagic areas, and the heart, especially the auricles, are often intensely hemorrhagic.

We may summarize the symptoms as follows: As a rule the disease disappears suddenly; the case develops very rapidly and terminates fatally. The ante-mortem symptoms are very unsatisfactory from a diagnostic standpoint. The post-mortem symptoms are definite and as a rule easily recognized, and consist of more or less extensive hemorrhages which are sharply defined when they appear upon the surfaces of the viscera and serous membranes.

Losses in Minnesota. It is now about two years since this disease was recognized in Minnesota by Dr. Wilson of our State Board of Health Bacteriological Laboratory. During these two years there have been reported to the State Board of Health eighty outbreaks among Minnesota cattle; these outbreaks involved fifty-two different farms, appeared in twenty different counties, and resulted in the loss of 551 cattle..

It is safe to assume that a considerable number of other outbreaks appeared but were not reported.

Four outbreaks have come under the writer's personal observation, and in three of these the opportunity was unusually good for careful study of the cases from a clinical standpoint.

Outbreaks Which Came Under Direct Observation.

Johnson Outbreak. Dr. Wilson and the writer went to North Branch, Chisago County, October 30th, for the purpose of investigating a very virulent disease that had appeared in a certain herd. The previous history was rather unsatisfactory because indefinite and incomplete. It was learned that five calves belonging to another party had died in a certain pasture earlier in the season, probably in June or July. The history of these cases agreed with the recent cases which we went to investigate, in that the calves had died suddenly; there had been some slight local, diffused swellings, and, on skinning, dark red areas were noticed by the owner. Another neighbor had lost suddenly a cow some months before with symptoms and history that agreed closely with those of the present outbreak and the five calves previously mentioned.

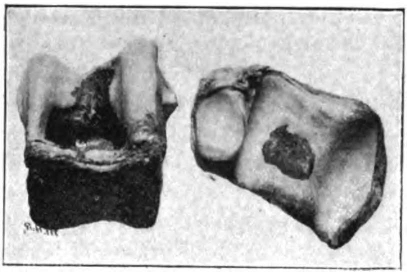
Mr. Johnson reported that he had twenty cattle in his herd when the disease first appeared on September 15th. A portion of the pasture was dry; another portion quite low and wet, but without timber. None of the cattle has had access to standing cornstalks. He had lost two animals about November 1, 1899, from what he supposed was the same disease. These were calves about six months of age. The owner noticed that in these previous cases the manure was coated with blood or showed bloody streaks. During 1900 one was taken sick and died suddenly in July, another about the middle of October. He had lost also one roan steer calf, seven months old, which died some time early Monday morning, October 29th, and a red heifer calf about the same age, which died on the same Monday. Both deaths occurred suddenly. The former was noticed to limp some in walking, the trouble being apparently in the left front limb. These two calves were examined post-mortem by Dr. Wilson and the writer on Wednesday, October 31st.

The following parts were examined and all parts were normal except as noted. Parts examined: subcutaneous tissues, mucous membranes, heart, lungs and pleuræ, alimentary tract, bladder, post-pharyngeal, mediastinal, bronchial, mesenteric, portal, and inguinal lymphatic glands, kidneys, and spinal cord in the anterior cervical region.

Autopsy 1. A red steer calf in fair condition and about four months of age, had died about thirty-six hours prior to our visit. The carcass was moderately bloated, otherwise in fair condition for examination. The skin was discolored in places, especially where denuded of hair. The subcutaneous areolar tissues were emphysematous with fairly well-defined hemorrhages, especially marked at the throat and the adjacent portions of the inferior cervical region. The superficial muscles beneath these infiltrated areas were similarly involved. The surfaces of the limbs below the knees and hocks did not show hemorrhages, as in the cases previously reported by Drs. Wilson and Brimhall. There were no wounds of the skin near the feet that could be detected. Tracheal, œsophageal, and laryngeal mucous membranes show marked inflammation, being dark, swollen, and wet.

The kidneys were probably normal at the time of death, but when examined they were soft and showed numerous light yellowish areas about 8 mm. in diameter. The lungs showed a few small, sharply-defined, hepatized areas, markedly resembling the peculiar lesions of swine-plague. The owner had noticed that this calf was quite lame while sick, and it is interesting to note that in the examination one of the peculiar areas of the hemorrhagic septicæmia was found involving the shoulder muscles. Several articulations showed ulcerations of the articular cartilages, especially the humero-radial and tibio-tarsal. These ulcerations were about 31 mm. long by 12 mm. wide.

FIG. 1.



Ulcerations of tibio-tarsal cartilage. Tibia and os calcis. Johnson outbreak, autopsy No. 1.

Autopsy 2. This was a red heifer calf, seven or eight months of age, in fair condition. The animal had been dead about forty-eight hours, but showed less post-mortem change than No. 1. So far as superficial parts are concerned, the post-mortem findings of No. 1 will apply very closely. This is also true of the lymphatic glands, mucous membranes and kidneys. The dura mater in the anterior cervical region had evidently been the seat of a very active inflammation. The lungs showed the peculiar hepatized areas of swine-plague, closely resembling those found in No. 1.

Caffrey Outbreak. The second outbreak studied by the writer in part with Dr. Wilson occurred near Cokato. My first information came in the following letter:

COKATO, November 26, 1900.

DR. M. H. REYNOLDS,
St. Anthony's Park, Minn.

DEAR DOCTOR: Mr. Caffrey, living two miles north, lost two cows about three days ago, and a third one is nearly dead now.

The first cow was apparently well at night, and was found dead in the morning. The next day another cow was taken sick and I was called. The second cow was comatose, uanble to rise, and died in about twenty-four hours.

Symptoms. This cow was lying on her breast with the head turned to one side, as in parturient paresis. She was comatose, her respiration stertorous, temperature 101°; pulse could not be taken.

Post Mortem. There was cherry-wine colored serum in the abdominal cavity; the small intestines were badly inflamed; the liver was slightly swollen, dark, and easily torn; the spleen was normal in size and a little darker in color than normal. The cephalic lobes of the lungs were inflamed, the heart had a parboiled appearance, and everything indicated a general septicæmia. Both lungs were congested.

This farm is situated at the southwest corner of Cokato Lake. Some of the land is low, some hilly.

These cattle were fed on cornstalks, hay, and shorts.

Yours respectfully,

H. A. HELA, M.D.C.

In company with Dr. Wilson, the writer reached Mr. Caffrey's place on November 29th. We learned that the Caffrey cattle had been kept in pasture as long as the grass was good, and were stabled at night. Later in the season they had been fed on wild hay, cornstalks, and shorts, the feed being apparently all fresh and good. The pasture in which the cattle had been during the summer and fall contained both high and low ground with some timber and brush. The owner had noticed in those cases which had died before we reached the place that the head had been drawn far back in some instances, and in some others the head was held in the flank as in parturient paresis, these positions being assumed shortly before death. He had noticed no superficial swellings, but said that the animals seemed to have irregular chills. He had also found blood-stained areas in all cases on the surface of the bodies after skinning. The sick animals had shown complete loss of appetite from the time they were first noticed ill. There had been no swine disease or chicken cholera in the neighborhood during the past season.

The following deaths, 1 to 6, inclusive, were reported to us by the owner:

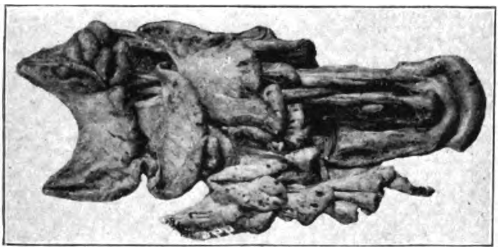
Death 1. A six-year-old cow in fair condition had appeared normal in all respects on the evening of November 22d, and was found dead the next morning, the owner not having supposed that the cow was sick. The cow had died in an easy, natural position, as though resting. Evidently there had been no struggle.

Death 2. Another six-year-old cow was found down on November 22d, early in the morning; seven o'clock. She was unable to rise, held head in the flank, and died on the evening of the 23d. There was persistent constipation; no superficial tumors.

Death 3. A spring steer calf, in good condition, was first noticed sick on the evening of November 25th. This animal tried repeatedly to rise and failed. Died about 10 A.M., November 26th; constipation persistent.

Death 4. This was a four-months-old calf. The owner heard a noise in the stable about 2 A.M. on November 27th. He went out to investigate and found the calf jumping into the manger and shoving the head against the wall. This calf died at 11 A.M., with the head drawn far back.

FIG. 2.



General view of the small intestines. Caffrey outbreak, death No. 6, showing many small, sharply-defined hemorrhages on peritoneal surface.

Death 5. This was a spring calf, supposed to be in perfect health until the morning of November 27th, when it was found almost dead. The animal died a little later. Constipation persistent.

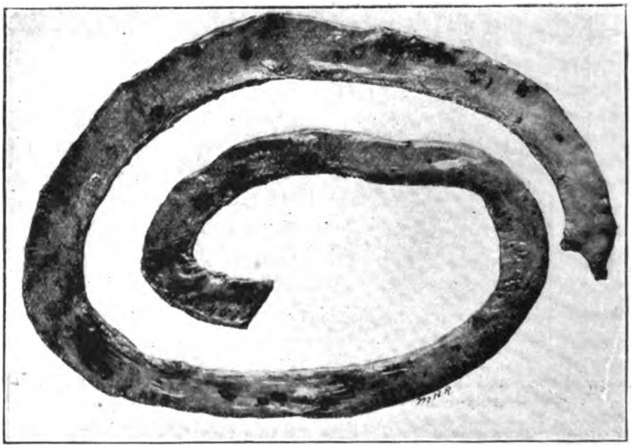
Death 6. An eight-year-old black cow, in good condition, was first noticed sick November 28th, at 7 A.M., and found dead about 10.30 A.M. She dropped suddenly at 7.30 and subsequently tried repeatedly to rise, but could not. She lay on the left side with the head in the flank much of the time. Later the cow succeeded in getting on her feet, but fell suddenly with the posterior limbs spread outward and backward, the body dropping suddenly from a standing position to the ground. Later the cow drew up her limbs and lay over on one side in a rather natural position with the head swung backward. She struggled considerably, but later died easily and slowly.

Autopsy. The tissue lesions were rather severe. Both lungs showed considerable interlobular emphysema, which was marked in the ventral lobes. Petechiæ were especially marked on the caudal lobes. The right caudal lymphatic gland was dark, swollen, and showed petechiæ.

The diaphragm showed scattering petechiæ on the peritoneal surface of the tendon. The heart was markedly hemorrhagic, the hemorrhages being both superficial and deep.

The gall-bladder was filled with a dark bloody fluid. Its walls were infiltrated and œdematous and the surrounding tissues were œdematous.

FIG. 3.



Section of small intestine. Caffrey outbreak, death No. 6. Typical hemorrhages on peritoneal surface.

There were petechiæ on the third stomach penetrating the walls. Eighteen inches below the pylorus the duodenum was œdematous and bedded in a yellowish gelatinous mass. The small intestines showed well-marked petechiæ throughout. These areas were large and abundant.

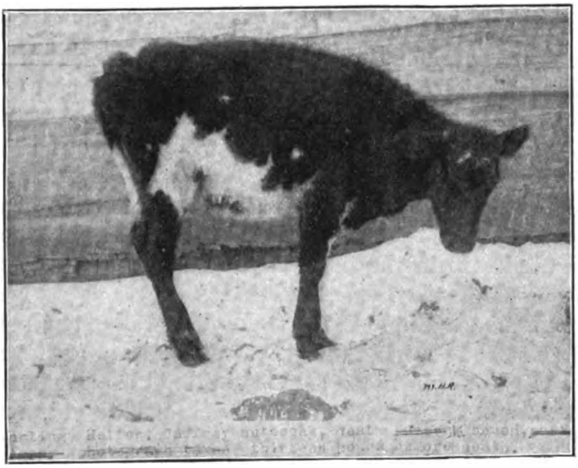
There were petechiæ in the kidney substance and upon the surfaces. The bladder walls were hemorrhagic, the mucous membrane being much inflamed, thickened, and softened. There was a small quantity of bloody fluid in the bladder. Spleen petechiæ were abundant, and especially conspicuous on the inferior extremity.

Death 7. This was a black and white heifer in fair condition, seven months old. (See Fig. 4). This animal was first seen by Drs.

Wilson and Reynolds at 2 P.M., November 29th. The temperature was then 98.6°, the calf being out of doors on a very chilly day. The respirations were very shallow but normal in frequency. The pulse was not taken. This calf stood with the back arched, shivering, and apparently ready to fall at any minute. The hair was rough; there was a slight filling at the inferior cervical region, and the eyes were sunken. The muzzle was dry.

At 4.45 P.M. the calf was still out of doors, temperature 100.9°, pulse 72, full, soft, and fairly strong; respiration 20. The heart and lung sounds were normal so far as could be determined by auscultation.

FIG. 4.



Yearling heifer. Caffrey outbreak, death No. 7, thirteen hours before death.

At 7.30 P.M. the temperature was 101.1°, respiration, pulse, etc., about as at 4.45. The calf was now put in the stable out of the wind, but the stable was cold.

At 10 P.M. she was lying on the left side with the head resting forward on the ground. The pulse was 54 and much weaker, temperature 99.9°, respiration slightly irregular and somewhat jerky. The skin and underlying tissues over the body seemed very sensitive under pressure. This was especially noticeable over the abdomen. The calf had evidently failed rapidly since 7 P.M. The head was jerking spasmodically and unconsciously, the spasms affecting especially the cervical muscles. The pupils were dilated, muzzle dry, and the neck seemed to be filling slightly at the throat.

At 3.30 A.M. the calf was dead, lying flat on the side in a rather natural and easy position. There were noted slight rigor mortis, moderate tympanitis, and somewhat blood-stained feces. The animal had died, as nearly as could be estimated, about 2 A.M. The respiration had been slightly stertorous from 7.30 P.M. to 10 P.M., after which the animal was not seen until found dead.

Autopsy. There was considerable serum in the abdominal cavity and a small quantity in the pleural cavity. Both lungs were somewhat congested but showed no petechiæ. The trachea contained an abundance of frothy material and the bronchi were moderately injected. The œsophageal mucous membrane was normal. The diaphragm had a few small hemorrhages on the pleural side. The liver showed a few small hemorrhages on the spigelian lobe. There were a few moderate hemorrhages on the heart surface and on the endocardium. The duodenum was in a condition very similar to that described in the post-mortem record of death No. 6. It was involved in a gelatinous mass filled with yellow serum about ten inches from the pylorus. The ileum was injected and the mucous coat showed areas of distinct inflammation. The rectal mucous membrane was very much inflamed. Subcutaneous hemorrhages were present, but small and not well marked. None were noticed on the inferior cervical region or on the lower portion of the limbs. The plainest and most typical hemorrhages were on the liver, as already noted. Both the parietal peritoneum and parietal pleura showed very little that was abnormal.

There was an old wound in the abdominal wall extending into the rumen about one inch in diameter. This injury must have occurred at more than a month prior to this examination. The stomach was adherent around the border of the abdominal wound, and the abdominal cavity was thus shut off.

The left humero-radial articulation showed one ulcer involving the articular cartilage about 25 mm. long, oval in shape. The left tarsal articulation showed an oval ulcer about 38 mm. long. The other articulations appeared normal.

Post-pharyngeal glands were enlarged, dark, and markedly hemorrhagic. The dura mater was moderately congested, with a little serum in the canal at the atlo-axoid articulation. The bladder was normal and very much distended with normal looking urine.

The tissue lesions in this case were neither extensive nor severe, evidently a case of toxine poisoning.

Death 8. A red heifer, about eighteen months old and in good condition, was first noticed sick November 30th at 7 A.M. She had previously been in good health, so far as known. When first noticed she was bellowing occasionally and standing apart from the other cattle. She refused her morning feed and was put in the stable about half an hour later. This calf soon went down and did not rise.

At 7.30 the temperature was 99°, respiration 22, pulse 14 and good. Respirations were full but somewhat stertorous. The horns were cold. Evidently the circulation was poor. Light-colored feces were passed.

At 10.30 A.M. the temperature was 97.8°, having fallen 1.2 degrees during the previous three hours. Respirations were now 24 and markedly stertorous. Pulse could not be counted. The subject was failing rapidly. This case also showed the hypersensitive condition of the skin.

At 12 M. the temperature was 97.8°, pulse was feeble and could not be counted. The respirations were still stertorous, the expiration being accompanied by spasmodic jerking of the abdominal muscles.

At 2.30 P.M. the temperature was 97°, respiration about 24, and the heifer was lying stretched on one side.

At 4 P.M. the temperature was 96°, respirations 24; pulse could not be counted. The heifer was groaning with each expiration. The head was very much drawn back and the body still sensitive under pressure. The animal died at 10.30 P.M.

Autopsy. A hasty post mortem by the owner discovered what he described as bruised areas under the skin.

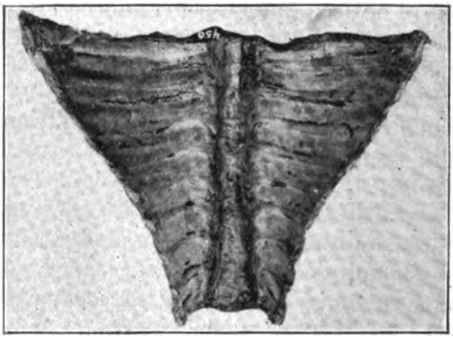
Death 9. A spotted heifer, three years old, was noticed sick on December 2d, at 4 P.M. She died at about 5 P.M., having apparently been in the best of health until shortly before she fell dead. No hemorrhagic areas under the skin were noticed by the owner.

Bedor Outbreak. The third outbreak which came under my observation occurred among the cattle belonging to Mr. John Bedor, living four and one-half miles east of St. Michael's Station. Mr. Bedor had lost one animal on December 1st and another on December 5th, both dying very suddenly and unexpectedly. These cattle had not been standing in corn. The writer visited Mr. Bedor's place on December 7th, and held examination post mortem.

Autopsy. Bedor death No. 2. Parts examined: subcutaneous tissues, trachea, œsophagus, dura and cord, post-pharyngeal glands, thoracic cavity and contents, alimentary tract, spleen, liver and portal glands, pancreas, bladder, peritoneum, inguinal glands, humero-radial and carpal articulations. All parts normal except as noted.

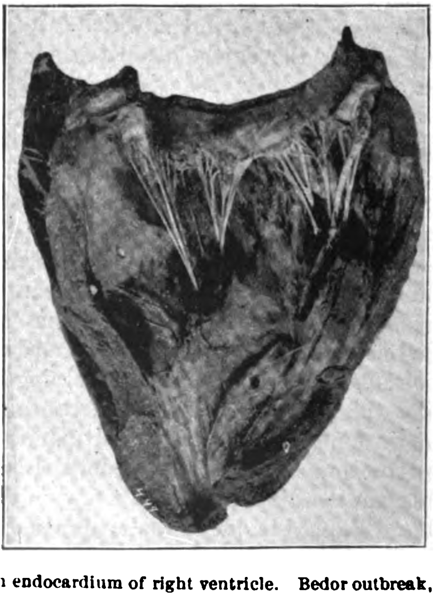
There was a circular hemorrhagic area involving the muscles just below the ischial tuberosity. The trachea contained a moderate quantity of frothy fluid. Post-pharyngeal glands were dark and hemorrhagic, but normal in size. The pleura showed a few small hemorrhagic areas on the diaphragm and a few on the costal pleura. (Fig 5.) The lungs showed in one cephalic lobe marked interlobular emphysema, similar to that described in autopsy No. 3 (Caffrey), and in the left caudal numerous hemorrhagic areas. On the endocardium of the right ventricle of the heart were several fairly well-marked hemorrhages. (Fig. 6.) Bronchial and mediastinal glands were not carefully examined, but were probably normal. There was one circular hemorrhagic area on the third stomach, quite typical. There were a few typical hemorrhages, 5 to 10 mm. in diameter, on the capsule of the liver. The duodenum and rectal mucous membranes were markedly inflamed and swollen.

FIG. 5.



Hemorrhages on costal pleura. Bedor outbreak, autopsy No. 5, death No. 2.

FIG. 6.



Hemorrhages on endocardium of right ventricle. Bedor outbreak, autopsy No. 5.

Mr. Ralph Richner, a near neighbor to Mr. Bedor, reported that he had approximately twenty head of cattle in his herd November 20th. Mr. Richner lost nine, most of the animals dying very suddenly, and the entire nine within a few days after the first case, which appeared on November 20th. His cattle had been fed shocked corn and other dry feed in the yard, and had not been standing in cornstalks at all. On skinning the animals and opening the carcasses the owner noticed that the livers and stomachs were spotted. The intestines were not especially noticed. He would probably not have noticed any petechiæ on the intestines, even had they been present. Dark bloody spots were noted under the skin in some cases.

University Experiment Farm Outbreak. History. On June 6th, seven cows, which had given a normal flow of milk in the morning, gave practically none in the evening. Otherwise the cows were apparently normal.

These cows were all noticed to be slightly ailing the next morning, with the exception of Dell 2. This cow was down and could not be gotten up. The others showed little except dulness. There was no rise of temperature; no evidence of pain or discomfort. When they attempted to walk the gait was more or less irregular, resembling very much the gait of milk fever in its early stage. This became true of all the cases sooner or later, and was of course more marked in some than in others.

There had been nothing new or unusual in the care or feed or other environments of these cattle, except that for a few days and nights they had been kept in a pasture which had received some sewage overflow from our filter beds, by reason of recent rains. A salt box was located near the point where this overflow stood and the cattle unquestionably drank of this water. No other cattle had been in the pasture for ten days.

Symptoms; First Period. The symptoms during the first twenty-four to thirty-six hours were not marked except as to continued dullness, staggering gait, and cold extremities. The skin was harsh and lacking sensation. This loss of skin sensation began at the posterior extremities and gradually extended forward. The milk flow was completely checked, or practically so in all cases.

Second Period. After twenty-four to thirty-six hours diarrhœa appeared, the discharge being dark and thin with a very disagreeable odor. The breath in some cases was noticed to be offensive. Nervous symptoms gradually developed and were very uniform in all cases.

The symptoms during the second period were those which belong to a gradually developing nervous disturbance and were very typical of cerebrospinal meningitis. The inability to walk naturally was continued, the gait being irregular and weak. The neck was usually bent to one side and the muscles, particularly of the face and neck, were spasmodically contracted. During this period the animals, with the exception of Countess, a large Holstein cow, were still quiet, moving around very little; but the eyes showed a wild, unnatural expression. The skin continued to lose sensation progressively forward. Countess was continually groaning, or rather grunting, with each respiration, but not in evident pain. During this second period she commenced to chew in a nervous and very persistent manner, with more or less profuse flow of saliva. It is also to be noted that the temperatures remained normal or subnormal during this period.

Third Period. This was one of intense activity. The eyes continued to grow more wild and unnatural, the grinding of the jaws more active and constant; the convulsion of the face and neck muscles became more intense, and then gradually a period of intense restlessness and activity, and death ended the scene in every case.

Post-mortem Symptoms. Several of these animals were examined and the symptoms as seen on examination post mortem were fairly uniform.

Meningitis involving the spinal cord or brain or both these organs was invariably present. In addition to this there were hemorrhages involving the subcutaneous tissues and lymphatic glands in various portions of the body; also the pleuræ, pericardium, and surfaces of various internal organs, particularly the lungs and auricles of the heart.

Evidently we had here meningitis; not the specific form of the disease, but one probably due to another germ. The lesions seen on post mortem are very suggestive of a hemorrhagic septicæmia infection.

Diagnosis. The veterinarians present, Drs. Lyford, Brimhall, Annand, and Reynolds, agreed that the clinical symptoms and the results of examination post mortem warranted a diagnosis of cerebrospinal meningitis; but the hemorrhagic conditions made it evident that we did not have the recognized specific type of the disease to deal with. (See *Provisional Report on Bacteriological Examination,* etc., by Dr. Wesbrook.)

Source of Infection. Owing to the fact that this particular outbreak occurred in a certain small portion of our herd and did not spread to other cattle on the farm, we were at first inclined to suspect the water in one of our pastures. The affected lot of cattle (our milking dairy cows) had been recently turned into this pasture and a certain small pond had been contaminated by sewage overflow from our filter bed, as already noted. But the fact that a few days later a virulent case of the same disease appeared in a heifer which had not, so far as known, had access to this water, but had been kept in an adjoining pasture, seemed to weaken this theory. In addition to this, the further fact that an experimental cow which was given this water only for a period of two weeks gave her normal flow of milk and remained in perfect health, seems to disprove the sewage-water theory as to the source of infection. A careful survey of the history and surrounding conditions leaves us still in the dark except as to the following incident: A sheep died about a year before of typical hemorrhagic septicæmia. It is possible that the infection came remotely from this sheep and that the meningitis was due to germ infection, the germ of hemorrhagic septicæmia being the exciting cause. It should be shown in further explanation that the sheep in question was buried in a field remote, considerably more than a quarter of a mile from the pastures wherein the disease appeared among cattle, although drainage is from this field toward the pasture in question. Other cattle have been kept during the interval in these pastures without harm. We do not know where the sheep received its infection. The cattle may have been infected from the same original source, or possibly there was an indirect infection from the dead sheep; but the latter theory seems very improbable. The sheep in question developed its disease and died in the sheep barn practically surrounded by other sheep, and yet we had no other cases among sheep at that time and none since.

June 19, 1902.

DR. M. H. REYNOLDS,
St. Anthony's Park, Minn.

DEAR DOCTOR REYNOLDS: Enclosed please find provisional report on the epizootic amongst the cattle at the State Experiment Station.

Yours very truly,
F. F. WESBROOK,
Director.

(To be continued.)

Dr. Austin Peters, of Massachusetts, in charge of the State veterinary control work, failed to find evidence of the existence of foot-and-mouth disease among the cattle coming into the State until it was prevalent in some four of the New England States.

Dr. A. F. Schreiber, of Philadelphia, Pa., chief meat inspector of the city, was seriously ill with pneumonia in November, following an attack of bronchitis.

Dr. Charles Ellis, of St. Louis, Mo., now fills the rôle of Veterinarian to the City Board of Health of that municipality.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

TREATMENT OF FISTULA OF THE URACHUS. The wall of the urachus is attached to the border of the umbilical opening. This fact predisposes the orifice to remain open when the cord is torn off too short or sometimes when the stump has sloughed off after ligaturing. The urine will continue to escape drop by drop, and complications of pyæmia and polyarthritis will follow.

Various cicatrizing and caustic applications, tincture of iodine, as well as resection of the urachus have often given poor results. Galvisberg employed the following treatment with remarkable results: The region is shaved and disinfected; a 15 per cent. solution of common salt, to which are added a few drops of phenic acid, is injected subcutaneously at several points around the umbilical orifice; the surface is then covered with iodoform collodion. In several hours a diffuse swelling forms which closes the urachal opening, and the dropping of urine ceases.

The author has found this trouble more common in females than in males, but does not venture whether, like umbilical hernia, it is hereditary.—*Ann. de Med. Vet.*

CONTRIBUTION TO THE STUDY OF ANEURISM IN THE HORSE. M. Sticker describes the formation of verminous aneurism as follows: The larvæ, carried by the blood, are arrested in the vasa vasorum of the large arterial branches of the posterior aorta and excite hypertrophic inflammation of the middle tunic of the vessel. These facts have been demonstrated by making sections of recent aneurisms. As the larvæ grow they form galleries in the middle tunic and penetrate toward the internal tunic, which in turn becomes inflamed; it is only at this moment that the endarteritis develops, followed by the formation of a thrombus.

The larva does not possess the attaching apparatus of the adult worm and cannot fasten itself to the wall of the large vessel while in the circulation. In old aneurisms in which the galleries already intersect the internal tunic one or both extremities of the larva may be seen protruding into the lumen of the artery. Exceptionally the parasite may be found free in the blood, but this is seen only in old aneurisms when the galleries have opened into the lumen of the vessel.

Sticker calls attention to the fact that his observations upon this point are in contradiction to the idea of many other authors who consider the endarteritis and thrombosis as the primary lesion and the meso-arteritis, at first acute and afterward chronic, with hyperplasia of the external tunic, secondary.—*Ann. de Med. Vet.*

PRODUCTION OF SUGAR BY THE MUSCLES. Cadeac and Maignon have found sugar in muscles crushed or constricted by ligature. Afterward they undertook to demonstrate whether the sugar is deposited at the traumatic centre or elaborated in the muscles themselves.

The following are their conclusions:

1. The muscles, like the liver, always produce sugar after death.
2. Muscles plunged in oil at 37° C. will produce more sugar than at the same temperature in the atmosphere.
3. Muscles surrounded by ice produce the least sugar.
4. Muscles crushed or compressed elaborate the maximum quantity of sugar.
5. This function of muscles is independent of all putrefaction.—*Ann. de Med. Vet.*

PREVENTIVE TREATMENT OF RABIES IN THE HORSE. Galtier, Nocard, and Roux demonstrated that saliva of rabic animals introduced into the veins of the horse and sheep does not cause rabies, but seems to confer immunity. They demonstrated, besides, that the intravenous injection of pure rabic virus (medulla) in horse, ox, and sheep twenty-four hours after the intra-ocular inoculation of a virulent cord is sufficient to prevent the evolution of rabies.

Monet first applied this principle practically to three cows that had been bitten by a rabid dog, each of which received 5 cc. of an emulsion of the medulla of the dog, eighty-four, seventy-nine, and one hundred and eighteen days after the bite was inflicted. None of these animals became rabid.

Rabieaux injected 16 c.c. of an emulsion of the brain of a rabid dog into the veins of an ass two days after it was bitten by the dog. The animal died.

Conet, in 1898, tried to immunize five horses bitten by a rabid dog. One injection of 5 c.c. of the medulla of the dog was made into the jugular vein; the injection was repeated in twenty-four hours.

The first horse was treated five days after the bite was inflicted; he died six months afterward after showing symptoms of paraplegia.

The second was treated seven days after the accident, and died in seventy-nine days.

The third, treated after four and a half days, died in two hundred days.

The fourth was sold after seventy-one days without showing any symptoms. The fifth died from rabies after one hundred and eighty days.

Of these five horses, three died from rabies. The cause of the paraplegia in the first is not well understood, and in the fourth the result was unknown.

The question to be raised from these observations is whether immunity would have been obtained had the injection been made immediately after the horses were bitten, or had the animals received successive injections at intervals. The treatment seems to have very much lengthened the period of incubation.—*Ann. de Med. Vet.*

PSEUDOTUBERCULOSIS IN THE DOG. Ducourneau and Jayles report the following case: An English bull dog, three months old, had been affected with distemper of the nasobronchial form, but his convalescence was slow and the general health bad. Among the symptoms were enlarged abdomen, polydipsia, polyuria, absence of sugar and of albumin in the urine, no appetite. The patient was suspected of tuberculosis, but tuberculinization was negative. In spite of all treatment the general state became aggravated, the ascites increased, diarrhœa became abundant, and the dog was sacrificed.

Autopsy. The liver was of enormous volume, of a reddish-brown color, marbled, with numerous yellowish-white spots, and bathed in eleven litres of peritoneal fluid. It weighed two kilos (410), or one-eighth of the body-weight; its surface was roughened by numerous tubercles without any caseous centres, and varying in dimensions from 1 to 22 mm. These tubercles existed throughout the thickness of the liver, where they had the same characters; some were also found upon the pancreas, great omentum, superior border of the left lung, and on the left auricle.

A histological examination of the liver, made by Professor Bimes, demonstrated that the lesions of this organ were not of a tuberculous nature; it was a question of intravascular pseudotubercles developed in consequence of a microbic infection of intestinal origin, but of an undetermined nature.—*Rec. de Med. Vet.*

DIAPHRAGMATIC HERNIA IN THE DOG. Clinically the patient showed intense dyspnœa for three days.

Post-mortem The pericardium was greatly dilated, as in pericarditis, with much exudation; but, instead of the latter, the pericardial sac was filled with a mass of intestinal (small) convolutions surrounding and compressing the heart. The pericardium at its apex, where it is attached to the diaphragm, had an opening corresponding at the same point to an opening in the diaphragm whose development had at a certain moment become arrested.

The hernia was recent, since the intestine, not even at the level of the diaphragmatic ring, did not show any signs of strangulation.

A peculiar anomaly of the liver predisposed to the displacement of the intestine. One of its lobes situated on the median line was absent, and the right and left parts of the liver were united only by a piece of hepatic tissue as large as a crayon. At a given moment the intestine passed between these two parts of the liver and penetrated the diaphragmatic opening.

This anomaly of the pericardium and diaphragm shows a loss of substance and was congenital; there was no evidence of rupture or inflammation of any part. This is a very rare anomaly.—*Rec. de Med. Vet.*

CANCER OF BRONCHIAL ORIGIN IN THE DOG. Small masses of epithelium covering the bronchia or gills in the fœtus may be the point of development of cancer. These are more frequent in man, but a few have been observed by Petit in the dog. They illustrate Cohnheim's theory of the causation of tumors. According to this theory small masses of embryonic cells remain embedded in the tissues in a latent form; from some obscure cause these cells commence to proliferate and develop into a characteristic growth. Cancer of the jaw develops from the paradental epithelial débris embedded in the gums.

Cancers of bronchial origin may be clinically confounded with goitre. Like the latter, they are situated in the region of the throat, where they form on the right or the left side a more or less pronounced enlargement. They are quite hard, fastened to the surrounding tissues, and covered by the skin, healthy and but little adherent; the neighboring lymphatic glands are invaded, small nodules may be found along the course of the carotid artery, and metastatic growths may develop in the internal organs. Other symptoms may result from general cachexia or compression of important nerves and bloodvessels in the region of the neck.

Dissection of the tumor proves the integrity of the thyroids, parotid, and maxillary salivary glands, as well as the nasal, buccal, pharyngeal, and laryngeal mucous membrane. The tumor is not of cutaneous origin, because the skin is healthy and little adherent. —*Rec. de Med. Vet.*

IMMUNIZATION AGAINST DOURINE. Buffard and Schneider inoculated two asses with the virulent blood. Three months afterward there were no apparent signs of mal de coit and the trypanosoma could not be found in the blood. Inoculated subsequently three times at intervals of fifteen days with a considerable dose of the parasite, these animals did not manifest any reactive signs.

Three dogs, having recovered from the first attack, were reinoculated and contracted a mild form of dourine. A third inoculation remained without effect upon one of them, while the other two showed a slight reaction; since then all attempts at reinfection were negative.

The authors conclude that a first attack confers a veritable immunity, even in the dog, in which it is acquired with greater difficulty; but more prolonged observation shows that immunity is not actually realized. In the asses the disease appeared again without inoculation some months afterward.

It would appear that the trypanosoma of dourine may exist in the system for an indefinite period, due to granulations which it emits, and which play the rôle of veritable spores. The idea of latent parasitism is therefore applicable to dourine as in the bovine piroplasma; but, while in the piroplasma the latent parasitism creates a definite and durable immunity, in the ass the adult trypanosoma reappears and manifests itself by well-defined signs.—*Ann. de Med. Vet.*

CHONDROMA AND OSTEOCHONDROMA IN THE MAMMARY GLAND OF A BITCH. Petit reports the two following cases:

1. *A pure chondroma*, a flat disk-shaped tumor measuring 10 cm. in diameter. The surface is lobulated, but the structure is uniform and the salient cartilaginous masses are not separated from one another by fibrous tissue.
2. An osteoid chondroma as large as two fists. It consists of large islands of cartilaginous tissue almost entirely ossified and separated from one another by fibrous or myxomatous tissue hollowed out at diverse points by pseudocystic cavities.

The author recalls the frequency of tumors of the mammary gland of the bitch. This gland, like that of woman, is the seat of all varieties of tumors. The chondroma are generally associated with myxomatous, sarcomatous, fibrous, and even osseous tissue.—*Rec. de Med. Vet.*

Dr. Richard Ebbitt has returned to Grand Island, Nebraska, and again resumed practice after a year's travelling out of our country.

Dr. Thomas Trinder, of Memphis, Tenn., has removed to Vicksburg, Miss.

REPORTS OF CASES.

MYXOMA OF THE NASAL FOSSA OF A HORSE.

By John J. Repp, V.S.,
Ames, Iowa.

On September 9, 1899, there was brought to my clinic at the Veterinary Hospital, Iowa State College, a brown gelding, six years old, in good flesh, suffering considerable dyspnœa owing to the complete occlusion of the left nasal fossa by a tumor. The tumor protruded for an inch or more below the nostril and extended up the fossa farther than the finger could reach. The tumor was soft and jelly-like, although enclosed in a strong, translucent capsule. It could be pushed aside and its shape changed readily by manipulation. The horse was cast upon the grass, chloroform anæsthesia induced, and a slit was made through the skin covering the false nostril extending upward to the angle formed by the nasal and the superior maxillary bone, and downward nearly to the free border of the nostril. This incision was made in order to gain more ready access to the point of attachment of the tumor. Partly by traction and partly by cutting with a long-handled bistoury, blindly, as best one might, the tumor was brought away. As nearly as could be ascertained, the tumor had its attachment about the middle of the nasal septum by a comparatively small base. The mass weighed nine ounces.

On microscopic examinations of sections from it the structure was seen to be that of the myxoma, to wit: the large stellate connective tissue cells widely separated by an almost amorphous intercellular substance.

The incision in the wall of the fossa was closed by interrupted silk sutures and a collodion dressing applied. It healed promptly without suppuration. The after-treatment of the fossa consisted in daily douches with 1 per cent. lysol solution. There was very little discharge and recovery was rapid and uneventful. The animal was discharged September 16th. A letter from the owner, dated January 22, 1901, in response to an inquiry from me contains the following statement: "The horse has been doing fine since you removed the tumor." I infer, therefore, that there was no recurrence.

Dr. W. H. Dalrymple, of Baton Rouge, La., fills the rôle of Secretary-Treasurer for the Louisiana Stockbreeders' Association.

EDITORIALS.

OUR NEW STAFF.

During the year 1903 the editorial direction of the Journal will be enhanced by the assistance of the following members of the profession:

Dr. Leonard Pearson, Dean of the Veterinary Department of the University of Pennsylvania and State Veterinarian, will contribute to the editorial direction of the Journal.

Dr. M. E. Knowles, State Veterinarian for Montana, and one of the most keenly interested veterinarians in the great stock-growing industries of the West, will keep our readers informed of the progress of State sanitary control work.

Dr. John J. Repp, of the Veterinary Department of the Iowa Agricultural College and Secretary of the American Veterinary Medical Association, will conduct the Society Proceedings Department of the Journal and will add much to the interest in association work through the Journal's columns.

Dr. S. J. J. Harger, of the Veterinary Department of the University of Pennsylvania will continue to direct the Department of Foreign Abstracts, culling from the progress in Europe of comparative medicine as recorded in the journals of our profession and those of comparative medicine.

Dr. E. M. Ranck, Secretary of the Pennsylvania and Keystone Veterinary Associations, and for a number of years connected with the bacteriological laboratory of one of the chief firms of our country, will from time to time contribute the results of the most recent work at home and abroad.

The Senior Editor and Business Manager, Dr. W. Horace Hoskins, will continue to direct the general work of the Journal, and from time to time contribute interesting matter to the readers and the profession.

THE COMPENSATION OF VETERINARIANS FOR DIRECTING PUBLIC WORK.

The salary of the President of the Pennsylvania Railroad is $50,000 a year. Several Vice-Presidents and the General Manager receive $25,000 per year, while salaries of from $6000 to $15,000 are numerous. The capitalization of the Pennsylvania Railroad, at present, is about $400,000,000, and it is to guard and advance a business represented by these figures that the salaries just enumerated are paid. Many bank presidents and officers of corporations doing a business that is very small, as compared to that of a railroad system, receive salaries quite as large as those cited.

The live-stock business is the greatest in the United States, and supports more families than any other. At the Chicago stockyards the volume of business last year amounted to more than $300,000,000. The total investment in live-stock and in equipments contributory to the live-stock industry amounts to much more than $6,000,000,000. To guard and advance the interests representing this astounding aggregation of capital, the United States Government has established the Bureau of Animal Industry. The prosperity of animal husbandry depends very largely upon the efficiency of this bureau. The chief of the Bureau of Animal Industry is charged with the responsibility of keeping the land free from animal plagues, of making foreign markets possible for our animals and animal products, of preventing the spread of indigenous plagues, and of protecting the health of the consumers of animal products. He is also charged with work calculated to encourage the improvement of domestic animals, and to render their production less costly. As compared to these duties, those of a president of a bank or a railroad are insignificant. There are plenty employees of corporations capable of filling the highest offices; there is only one man capable of filling the position of Chief of the Bureau of Animal Industry as well as it is now filled. Judged by the standards of commercial life, the Chief of the Bureau of Animal Industry should receive a salary of at least $50,000 a year. This is the salary of the President and to suggest it for the head of a subordinate department is absurd, however important the work of that department may be. But, judged by non-commercial standards, judged by salaries the government is paying, Dr. Salmon should receive not less than $6000 per year. England, with interests much less important, pays her chief veterinarian £2000 per year. At present, relatively speaking, the Chief of the Bureau of Animal Industry is the poorest paid member of his department.

Salaries for veterinarians are too low all along the line. It may be, however, that this is largely the fault of veterinarians. They have not made themselves felt sufficiently and have not impressed the public with the necessity and importance of their work and the fact that their pay should be commensurate with existing standards in other professions.

Koch charged the British Government $30,000 a year for his services in connection with the study of rinderpest in South Africa. We are indebted to Prof. Koch for this wholesome precedent. He is not a veterinarian, but his charge was for veterinary work.

Where a given amount of capital is in jeopardy and a given number of persons are threatened, and where the danger can be removed or averted only by men who have the best mental balance and a professional equipment that can be acquired only by the expenditure of long years of study and much exertion and money, a certain harmony should exist in relation to the compensation of the experts employed—no matter whether the fundamental question is one of engineering, law, statecraft, finance, medicine, or comparative medicine.

Again we say, judged by existing government standards, the Chief of the Bureau of Animal Industry should be paid not less than $6000 per year.

NECROLOGY.

THE subject of this sketch, Mr. Frank Briard, was born July, 1878, at St. Heliers, Jersey, England. He was raised on his father's farm and educated in the schools of that country. In 1889 he entered St. James' Collegiate School, in Jersey, and continued until 1893, and at various times won awards of prizes in his class in many branches, especially in French translations. He was well versed in the care of cattle and the breeding of Jerseys. About five years ago he came to this country, and was employed for some time as herdsman on the celebrated Thorndale Dairy Farm, at Thorndale, Pa. Before entering the Veterinary Department of the University of Pennsylvania he took a business course at Storrs' College, at Storrs, Conn. During his period at the veterinary department he won the prize of his class for the best average in examinations of comparative anatomy, which course covers two years' study and dissection. He stood second for the highest general average in all branches for the two years completed June 1, 1902. Early in October he was taken with a severe attack of articular rheumatism followed by endocarditis. After ten weeks of illness at the University Hospital he died, January 3, 1903. His funeral was held and temporary interment made at Fernwood Cemetery, January 5th. Rev. Herbert Roche, of the Church of the Transfiguration, officiating, and about one hundred of his fellow students, professors, and friends attending the services. The following resolutions were read and adopted at the last regular meeting of the Veterinary Medical Society of the University of Pennsylvania, of which he was an active member and ex-librarian:

Resolutions.

WHEREAS, We, the assembled members of the Veterinary Medical Society of the University of Pennsylvania, wish to express our grief for the loss of our beloved fellow member and ex-librarian, Mr. Frank Briard.

WHEREAS, It has pleased Almighty God to have removed from us a most valued and earnest member of the society,

Resolved, That while we bow in submission to Heaven's decree, we feel deeply the loss of our friend, whose record as a student was beyond reproach, and as a friend and companion ever true.

Resolved, That we one and all sorrow for the suffering of our brother member, and that we tender our heartfelt sympathies to the bereaved family in their trying hour of affliction.

Resolved, That these resolutions be spread on the minutes of this society and that a copy be sent to the family in England, with whom we deeply sympathize.

GEORGE H. HART,
T. E. MUNCE,
OSCAR NELSON,
Committee.

HARRY E. STATES,
President of the Society.

COMMUNICATION.

BROOKLYN, January 4, 1903.

DR. W. HORACE HOSKINS, EDITOR VETERINARY JOURNAL,
3452 Ludlow Street, Philadelphia, Pa.

DEAR DOCTOR: The Committee on Intelligence and Education is desirous of obtaining the following information and thinks it might obtain the quickest results through your valuable magazine, and therefore address this communication to you, so that you might publish this in your next issue. We want to know the name of each and every veterinary college in the United States and Canada, whether it is an independent school or whether it is connected with some university or agricultural college; also the name of the dean or secretary, and the correct address of the school and its officers, so that this committee can compile a correct list of schools and get in direct communication with each of them.

We also want to obtain a correct list of all boards of examiners connected with the regents in each State with the post-office address of such board and its president or secretary, so that we can communicate directly with them also.

The committee would also like to find out if there is any particular class or kind of literature that any State or locality would like this committee to bring prominently before any public officials or before the public through the aid of the public press, or to the attention of any health or agricultural departments, or any cattle or live-stock boards; this committee will do its best to get such literature in shape to present to the proper people in the best possible manner. Kindly state the character of the literature and for what purpose, with the name of the person, body, or paper that you desire us to get to, with the address of each and all that you desire us to reach.

To get this information accurately it will be necessary that this committee hear from each State and Canada, so that it will be complete, correct, and accurate, and with proper addresses.

The committee respectfully calls this to the attention of the resident State secretaries and asks them to co-operate with this committee and to make it their business to furnish this information accurately and as soon as possible, so that we may go ahead on the lines suggested, and act according to the resolutions passed at the last meeting of our association.

Trusting you will have space to insert this in the next issue of your valuable magazine, I remain,

Very truly yours,

E. B. ACKERMAN,
Chairman.

SANITARY CONTROL WORK.

FROM THE ANNUAL REPORT OF THE SECRETARY OF AGRICULTURE TO THE GOVERNOR FOR THE YEAR ENDING DECEMBER 31, 1902.

THE office of the State Veterinarian has experienced a year of unusual activity and progress. As heretofore, the greater part of the State Veterinarian's work has consisted in aiding herd owners who wish to eradicate tuberculosis from their herds and, with this object in view, enter voluntarily into a contract with this Commonwealth under which they receive important assistance on condition that they will do what they can to make the work permanent. Other diseases of animals have also required much attention during the year. "Rinderseuche" has been among the most important, because the most prevalent. There has been less anthrax and black-quarter than for several years, due, it is believed, to the systematic vaccination against these diseases that has been practised on rather a large scale during the past few years.

Ever since the organization of the work of the State Live-stock Sanitary Board a laboratory has been maintained for the production of the tuberculin, mallein, and anthrax vaccine used in the regular work of the board. The cost of maintaining the laboratory, has been more than made up in the value of these products. But in addition to this work, the laboratory has served a most useful purpose in affording facilities for the diagnosis of specimens from diseased animals, and has by this service considerably increased the efficiency of the veterinary profession of the State. Outside of all this routine work the laboratory has furnished the opportunity for conducting a rather remarkable volume of research. This division of the work has been most fruitful, and has been the means of revealing many new and serviceable facts in connection with the pathology, the diagnosis, and the prevention of some of our most prevalent and destructive animal diseases. The most notable achievements in this line during the past year have been, first, the establishing of the essential identity of the animal and human tuberculosis; second, the development of a method for immunizing cattle against tuberculosis by vaccination, and, third, the identification of the "Rinderseuche" as the disease that has heretofore been called the "mountain disease of cattle," and has caused considerable losses in some of the rougher parts of the State.

In regard to tuberculosis, the number of inspections is limited only by the funds available for making them. There are several times as many applications from herd owners as can be responded to under the existing financial limitations. Since all herds whose owners apply for an inspection and tuberculin test cannot be inspected and tested, and all tubercular cattle removed as is desired, the attempt is at all times made to test the herds that appear to be most extensively infected, and in respect to other herds, to remove the animals that are most immediately dangerous. In this way 912 tubercular cattle have been condemned and destroyed during the year. These were appraised at $26,306.25. There is at present a most active desire on the part of cattle owners to free their herds from tuberculosis. They appear to keenly realize the harm the disease is doing, and are willing to co-operate with the State Veterinarian to repress it. Indeed, as stated above, they constantly apply, of their own volition, for more aid than the State Live-stock Sanitary Board can pay for. The result of this interest is that tuberculosis of cattle is being repressed in Pennsylvania at a gratifying rate, and each year shows less loss from this cause.

There have been thirty-five cases of glanders in the State during the past year. Most of these diseased animals were involved in two outbreaks of the disease, one of which came from a glandered mule from East St. Louis, and the other was traced to a pony from Maryland. By immediately checking such outbreaks, the dissemination of the disease and the infection of the horse stock of the State is prevented. The value of this protection is apparent when it is known that in Massachusetts, with about one-fifth the area of

Pennsylvania, there are from seven to eight hundred condemnations on account of glanders each year.

Rabies has prevailed rather extensively, and nearly all parts of the State have been involved. It is extremely difficult to prevent this disease, and it is scarcely possible without establishing a general quarantine of all dogs in infected districts. In order that this may be done effectually additional legislation is necessary, and a bill covering this ground will be submitted to the incoming Legislature.

The discovery of "Rinderseuch" has cleared up a question as to the identity of a disease that has prevailed rather extensively among cattle turned out in some of the rougher mountainous parts of the State. This disease has been shown to exist in only a few other parts of the United States, but now that attention has been called to it, it may be found that it is of much wider distribution than has been supposed.

All things considered, the most notable achievement of the year, so far as the work of the State Veterinarian is concerned, is the development of a means to vaccinate cattle for the prevention of tuberculosis. This process consists in introducing into the system of the animal a culture of the tubercle bacillus so attenuated as to be incapable of producing disease. After a few treatments of this sort the animal is able to resist, without a sign of the least injury, inoculation with virulent tubercular material that is fatal for unprotected animals. This work has gone far enough to show that the principle upon which it is based is sound. It now remains to develop the methods that are necessary to make this system of general service. The State Veterinarian and his assistant, Dr. S. H. Gilliland, are now actively at work on this problem and are of the belief that they will soon be able to solve it. The immense practical value of this discovery cannot now be fully estimated. It is clear, however, that successful vaccination against tuberculosis of cattle will save the State annually far more than the entire cost of the work of the State Live-stock Sanitary Board and of the entire Department of Agriculture. The State is to be congratulated upon the foresight of the Legislature that led to the maintenance of the laboratory and research work of the State Live-stock Sanitary Board. It has already paid for itself many fold in laboratory products for use in diagnosticating and preventing disease and in other actual results now to its credit.

Dr. W. Horace Hoskins, of Philadelphia, Pa., made a tour of Columbia County, Pennsylvania, for the State Live-stock Sanitary Board, in November, investigating an epizoötic outbreak of hog cholera.

MEASURES ADOPTED TO CONTROL AND ERADICATE FOOT-AND-MOUTH DISEASE FROM THE NEW ENGLAND STATES BY THE BUREAU OF ANIMAL INDUSTRY AND STATE AUTHORITIES.

To Inspectors Engaged in Eradication of Foot-and-Mouth Disease:

The eradication of foot-and-mouth disease is the most urgent and important problem confronting the live-stock industry at this time. The inspectors and others engaged upon this work are helping to make an imperishable part of the veterinary sanitary history of the country. Should the disease become more prevalent or escape to the West, the condition would constitute a grave calamity which might easily reach national proportions. If the disease is confined to its present area and is exterminated there, great credit will be awarded to all who have had a part in this memorable achievement. It is hoped that every individual inspector, agent, or other employé will realize his own great responsibility in this service and will do all that he can to insure the early and complete eradication of this plague.

For the purpose of explaining and systematizing the work, the following instructions are issued:

Co-operation between the States and the Federal Government. The work in hand will be carried out, so far as possible, in co-operation between the authorities of the States and the Bureau of Animal Industry. In some instances agents of the Bureau of Animal Industry will be given commissions from the Cattle Bureau or the Cattle Commission of a State, so that they may exercise authority that is not directly conferred by the Bureau of Animal Industry. The responsibility of the inspectors and agents is in large degree a joint responsibility, as they will be clothed with authority both from the State and the nation. It is therefore important that all work shall be conducted in full harmony with the State and local inspectors.

General Plan of Operation. The general plan of operation will be to locate every diseased animal of the infected place as soon as possible, and then to establish such restrictions as will effectually prevent the transfer of infection. All infectious material must be held in seclusion until it has perished or has been destroyed, that is to say, until the subjects have fully recovered or have been killed and the premises disinfected.

Everyone is encouraged to send to Dr. S. E. Bennett, 147 Milk Street, Boston, Mass., any reports or rumors that he may hear in regard to the probable or possible existence of disease in any new locality.

Suggestions Regarding Inspections. In inspecting animals with a view of discovering the existence of foot-and-mouth disease, it should be borne in mind that the acute symptoms causing appreciable illness are of short duration. The cow becomes feverish and depressed not more than a day before the vesicles appear in the characteristic locations. After this the temperature falls to near normal. The vesicles last one or two days, and after they have broken, unless the areas involved are exceptionally large or complications arise, healing starts almost at once. If the vesicles are large or numerous upon the teats or about the hoofs, soreness of these regions may remain for two weeks or more. Therefore, if an inspection is made for the purpose of determining whether a herd has passed through the disease, and in the absence of superficial erosions upon the pad, within the lips, upon the gums or tongue, special weight should be placed upon slight lameness, undue moisture of the skin between the toes, and sore teats.

It may be of value in some instances to apply at the creamery or milk shipping station for information as to the quantity of milk produced at the time it is suspected that the herd was affected. A more or less sudden fall in the yield, lasting for one or two weeks, might be a valuable clue. Much may sometimes be gained by conversation with cattle dealers and live-stock owners in regard to outbreaks in other places.

In sheep and swine the symptoms are about as they are in cattle, but the vesicles are more likely to be confined to the feet. All exposed cloven-footed animals are to be regarded as possible carriers of the disease and are to be quarantined and reported.

How to Avoid Spreading Infection. It is of the utmost importance that the inspectors shall not themselves carry infection from place to place. This may be avoided by scrupulous attention to the following precautions:

Each inspector shall be provided with a rubber coat coming within nine inches of the ground, a pair of rubber boots, and a bottle of creolin or some mercuric chloride tablets. He should also have a cotton skull-cap that may be carried in the pocket of the rubber coat. Before going into a stable in which there is any reason to suspect that infection may exist, this special attire shall be put on. Upon coming out, the exposed parts of the coat and boots shall be washed off thoroughly with a 3 per cent. solution of creolin or with mercuric chloride solution, 1:1000. All dust, dirt, and manure shall be removed from the coat and boots in this way. The inspector shall then remove his cap and place it in the pocket of his coat, pack his special clothing in a bag provided for this purpose, and then disinfect his hands. The cap shall be disinfected at the close of each day's work. If so much washing makes the hands sore rubber gloves may be worn, if disinfected carefully each time after use.

Importance of Absolute Quarantine. Do not fail to impress upon each person in charge of a quarantined herd the absolute necessity of a strict and complete quarantine. Explain what such a quarantine means. Give to each such person a copy of Circular No. 38, Bureau of Animal Industry, on foot-and-mouth disease. Especially impress the importance of excluding all visitors, and of those who have been about infected cattle or premises keeping away from the stock or premises of others. Remember that dogs and cats must be confined and all stray animals excluded from quarantined premises. Keep all cattle dealers away.

Reports. Make reports carefully and promptly. If special conditions of importance arise telephone or telegraph to Dr. S. E Bennett, 147 Milk Street, Boston. Do not fail to report anything that may have a bearing on the origin or the additional distribution of this disease.

D. E. SALMON,
Chief of Bureau.

BOOK REVIEW.

A TEXT-BOOK OF HISTOLOGY AND MICROSCOPIC ANATOMY OF THE HUMAN BODY, INCLUDING MICROSCOPIC TECHNIQUE. BY DR. LADISLAUS SZYMONOWICZ, A. O. Professor of Histology and Embryology in the University of Lemberg. Translated and Edited by John Bruce MacCallum, M.D., Johns Hopkins University, Baltimore. Illustrated with 277 engravings, including 57 plates in color and monochrome. 435 pages. Philadelphia and New York: Lea Brothers & Co., 1902. Cloth, $3.00, net.

A good knowledge of histology is absolutely essential to an adequate conception of such medical subjects as physiology, pathology, therapeutics, and the processes of repair of tissues. Fortunately, there is no branch of medical science which affords a more fascinating study than histology. This is especially so now that Szymonowicz-MacCallum has appeared in the book market. This work is printed in large type upon excellent paper and is attractively and durably bound. The illustrations are noteworthy on account of their abundance and the excellence of their execution. Whenever one feels the need of a figure or plate to explain the text, it is always to be found. Of the plates, some are in color and some in monochrome. These are so inviting as to compel attention to them. They markedly facilitate the study of the subject. Writing as I am for veterinary students and practitioners, it may be well to state that although the title of the book sets forth that it is an "histology of the human body," out of a total of 180 figures and 42 plates, exclusive of those which are diagrammatic, there are 119 figures and 22 plates made from 19 different species of lower animals as against 61 figures and 20 plates made from the human body. The veterinarian, therefore, may study this book with the assurance that it is in reality a safe and helpful guide to him in the study of animal histology. The price is very low, considering the character of the book.

Part I. of the book treats of the *cell* and the various *tissues* which enter into the structure of the animal body. Part II. treats of the *microscopic anatomy* of the various organs. The appendix discusses in a singularly concise and helpful way the subject of *general microscopic technique*. The language of the book is remarkably intelligible and readable, with complete absence of unnecessarily technical language. Due credit is given American authors for their work, something unusual in a foreign book. MacCallum has made numerous additions both in the text and in the illustrations. It is important to note that he has admirably succeeded in embodying the very latest researches upon the subjects with which the book deals. I can heartily and unreservedly recommend this book to students and practitioners of veterinary medicine.—JOHN J. REPP, V.M.D.

COMMENCEMENT EXERCISES.

ONTARIO VETERINARY COLLEGE.

Christmas examinations of this college were held December 23, 1902, in the college buildings. The usual board of examiners, composed of prominent veterinary surgeons engaged in the active practice of their profession, granted diplomas to the following gentlemen: William G. Chrisman, Harrisonburg, Va.; Peter Crerar, Russell, Manitoba; Fred. J. Delaine, Emerson, Manitoba; Edward L. Fryer, Jr., Blakely, Ga.; Richard L, Kramlich, Fogelsville, Pa.; E. J. Murphy, Metcalfe, Ontario; H. Wynn Nobles, Hastings, Michigan; Matthew S. Suttle, Paterson, New Jersey; William Thompson, Minnedosa, Manitoba; John E. Wurm, Ubley, Michigan.

The Attorney-General of Michigan has ruled that the State Veterinary Examining Board must accept diplomas from the Grand Rapids Veterinary College and register under the State law all those who hold the same.

"Parturient Paralysis" is the title of a press bulletin issued by Dr. Chas. F. Dawson, Station Veterinarian of the Florida Experiment Station. Reference is made therein to the value of the potassium iodide treatment.

SOCIETY PROCEEDINGS.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting of the Passaic County Veterinary Medical Association was held at 169 Paterson street, Paterson, N. J., on Tuesday evening, December 2, 1902, with Dr. William Herbert Lowe, President, in the chair, and Dr. William J. Fredericks acting as Secretary.

On roll-call the following members answered to their names: Drs. Anthony P. Lubach, Passaic; J. Payne Lowe, Passaic; John H. De Graw, Paterson; David Machan, Paterson; T. J. Cooper, Paterson; William H. H. Doty, Paterson; M. A. Pierce, Paterson; William J. Fredericks, Delawanna, and William Herbert Lowe, Paterson.

The minutes of November 4 were read and approved on motion of Dr. J. Payne Lowe, seconded by Dr. Cooper.

The next order of business being "unfinished business of the previous meeting," the President reported that the certificates of membership had been printed as ordered, at an expense of $5, and that a number of members already had their certificates, each paying fifty cents for the same, which from our nineteen members would bring into the treasury $9.50, so that the Association was actually making $4.50 by the transaction. On motion the report was received and ordered entered upon the minutes.

Dr. Cooper was allowed to withdraw his "blacklist" proposition by unanimous consent.

Treasurer M. A. Pierce made the following report:

Receipts.

September 16th. Received from Dr. A. Machan, Secretary	$16.00	
October 31st. Received from Dr. A. Machan, Secretary	10.00	
		$26.00

Disbursements.

Paid Guardian P. & P. Co.'s bill for 200 letterheads, 200 envelopes, 100 postal cards, and 200 schedule of fee cards	$9.75	
Paid the same company's bill for 250 copies of by-laws	9.75	
Paid the same company's bill for fifty certificates .	5.00	
		24.50
Balance on hand		$1.50

It was regularly moved, seconded, and carried that the Treasurer's report be received and spread in full upon the minutes.

The President then paid over to the Treasurer $11.50, which had been paid to him since the last meeting for certificates and dues.

President Lowe read part of a letter from Dr. W. Horace Hoskins of Philadelphia, managing editor of THE JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES, in which the editor said that he noted "the continued interest of your members in the work of the profession, and trusts that it will continue with added power and influence."

The President reported that he had received a letter from Dr. Roscoe R. Bell, of Brooklyn, N. Y., editor of *The American Veterinary Review* advising him that the December *Review* would contain the full reports of the last three meetings of the Passaic County Veterinary Medical Association.

The President then made the following announcements: Next meeting of the Passaic County Veterinary Medical Association, Tuesday evening, January 6, 1903.

Annual meeting of the Veterinary Medical Association of New Jersey, at the Trenton House, Trenton, N. J., Thursday, January 8, 1903. One of the most interesting and instructive features of the programme to practitioners would be a lantern-slide exhibition and address on "The Etiology and Prevention of Infectious Diseases of Animals," by Prof. Veranus A. Moore, of the New York State Veterinary College, at Cornell University, an eminent authority on comparative pathology and bacteriology.

Meeting of the State Board of Veterinary Medical Examiners at the State House, Trenton, N. J., January 9 and 10, 1903, for the examination of candidates for license to practice veterinary medicine, surgery, and dentistry in the State of New Jersey.

The members resolved to attend the State meeting at Trenton on January 8 in a body.

The Association then listened with much interest to the reading of a paper on the "Examination of Horses as to Soundness," by Dr. David Machan. A profitable discussion followed on several aspects of this important subject to horsemen and veterinarians. The Association gave Dr. Machan a vote of thanks.

The President appointed Dr. Fredericks essayist for the January meeting.

On motion, the meeting adjourned at 10.45 P.M.

WILLIAM J. FREDERICKS,
Secretary pro tem.

KEYSTONE VETERINARY MEDICAL ASSOCIATION.

THE regular monthly meeting of the Keystone Veterinary Medical Association was held at the usual place, December 9, 1902. President Kooker called the meeting to order, and in the absence of the Secretary, Dr. W. Horace Hoskins was appointed Secretary *pro tem.*

The members of the profession present were Drs. Carter, Conard, Cox, M. W. Drake, Hoskins, Kooker, Lintz, Marshall, Mecray, Thomas B. Rayner, Underhill, and Williams.

Reading of the minutes was dispensed with. First order of business was the appointment of delegates to the Veterinary Medical Association of New Jersey. The President appointed Drs. Pearson, Marshall, and Hoskins to represent the Keystone Association at Trenton, January, 1903.

Dr. C. J. Marshall, who was to report upon "Influenza," asked to be given until February meeting, when he would be prepared to report on the same.

The President announced the subject for discussion was "Lameness of the Hind Extremities." Dr. Hoskins was called upon to open the subject, in which he discussed the difficulty in making a differential diagnosis of hock lameness and lameness of the lower portion of the extremity, especially where the foot was not rested on the ground, reciting a number of cases of obscure hock and pastern lameness.

Dr. Charles Lintz reported upon several similar cases of the hock-joint. Dr. Charles Williams suggested the more frequent use of cocaine for diagnostic purposes. Dr. Kooker reported an obscure case of hock lameness, where swelling, heat, tenderness, and extreme lameness presented themselves. This case afterward developed a suppurative process at the base and hollow of the heel, which terminated in a deep slough almost to the navicular articulation. Dr. Thomas B. Rayner discussed nail wounds of the hind feet. Dr. Charles J. Marshall brought up the question of our right to remove rubber pads in examination for soundness. Dr. W. W. Drake reported very great benefit derived from the use of pads in hock lameness in the hind extremities and where there was a marked disposition to wear out the toe of the shoe with but little wearing of the calkings or wings of the shoe. The subject was further discussed by Drs. Mecray and Conard, after which the discussion closed.

The President then asked Dr. Hoskins for some remarks relative to the outbreak of foot-and-mouth disease in the New England States. After referring to the long period of time that elapsed before active measures were taken for the suppression of the disease, he specially referred to the excellent services rendered by the State Veterinarian of Pennsylvania in protecting the State's interests from the danger of an unjust quarantine proclamation by Governor Yates, of Illinois. The active measures adopted by the State Live-stock Sanitary Board in preventing our great foreign commercial interests from suffering from such unwise and uncalled-for measures, was very favorably commented upon by Drs. Marshall, Conard, and the President, and on motion a committee of three was appointed, consisting of Drs. Marshall, Underhill and Hoskins, to prepare resolutions commendatory of the prompt and resolute action of our State Live-stock Sanitary Board and our State Veterinarian, after which, on motion, the meeting adjourned.

W. Horace Hoskins,
Acting Secretary.

SCHUYLKILL VALLEY VETERINARY ASSOCIATION.

The semi-annual meeting of this Association was held on Wednesday, December 17, 1902, at the Board of Trade Room, Reading, Pa., with Dr. Otto G. Noack, President, in the chair, and Dr. W. G. Huyett acting as Secretary. On roll-call the following members answered to their names: Drs. D. R. Kohler, Boyertown; G. A. Wehr, Denver; Otto G. Noack, Reading; F. H. McCarthy, Pottsville; W. G. Huyett, Wernersville; F. H. Schneider, Philadelphia; S. G. Burkholder, Rothville; I. C. Newhard, Ashland; E. D. Longacre, Shenandoah, and W. S. Longacre, Mantz. Among the visitors were Drs. Leonard Pearson, University of Pennsylvania; E. M. Ranck, Glenolden; Jacob B. Leber, Ephrata, and Jacob N. Becker, Palmyra.

The minutes of the previous meeting were read and approved. The Treasurer, Dr. F. H. McCarthy, handed in a satisfactory report, showing a balance of $35 in the treasury after all bills had been paid. The President delivered his address, which was concise, as usual, but very comprehensive. After dwelling upon the work this Association has accomplished, he referred to the duties of the veterinarian in relation to the agricultural interests, especially in connection with the spread of infectious diseases communicable to man. He furthermore expressed a strong desire for a higher standard of the profession, claiming that a great advance to that effect would be gained by having all veterinary colleges under State supervision, instead of being private institutions.

The Association received its charter, which was read by the Secretary. A motion was made and carried that the same be accepted as satisfactory, thus rendering the organization an incorporated body. A few favorable remarks were given by Drs. Wehr and Kohler, delegates to the State meeting. The Society then adjourned for luncheon, convening again at 1.30 P.M.

The President offered the following resolutions:

WHEREAS, By the change of Governor the question of appointment of State Veterinarian arises; and

WHEREAS, The present incumbent, Dr. Leonard Pearson, has shown himself able and fully competent in the execution of the duties required by this office; be it

Resolved, That this Association recommends and urges his reappointment for this office to Governor-elect Pennypacker.

WHEREAS, A bill known as the Anti-vivisection Bill is introduced in the United States Senate to prohibit and make unlawful experiments on living animals; and

WHEREAS, The passage of such act would seriously interfere with the study of medical students; therefore be it

Resolved, That this Association protests against the passage of said act, and shall urge the Senators of this State to try and defeat this bill.

WHEREAS, This meeting of the Schuylkill Valley Veterinary Association has been one of the most successful that has ever been held by this organization; and

WHEREAS, This was only possible through the courtesy and kindness of Drs. Pearson, Ranck, and Burkholder to attend and favor us with their instructive essays; be it

Resolved, That the thanks of this Association are hereby extended to them for their aid in making this our meeting a success, and we thereby express our deep appreciation of the same.

These resolutions were approved as read and ordered spread upon the minutes. A recess was then given for the collection of dues. After adjournment some controversy followed in regard to a letter received by the Secretary from Dr. William Moyer, who, from the tone of the letter, seemed to be offended by a letter addressed to him, notifying him of his delinquency to the Association. The question being duly considered at the meeting, the Secretary was advised, after a motion had been made by Dr. Newhard and seconded by Dr. McCarthy to that effect, to write him an encouraging letter to pay his arrears promptly and become a member in good standing.

The Chairman of the Committee on Intelligence and Education was called upon, and Dr. W. S. Longacre responded with a few appropriate remarks.

Dr. D. R. Kohler, Boyertown, read a paper on the subject of "Parturient Paralysis." It was very practical, afforded some instructive points, and was thoroughly discussed by most of the members and visitors present. A motion was made and carried, tendering a vote of thanks to Dr. Kohler for his valuable paper.

Owing to Dr. Wehr not being fully prepared with his paper upon "Pleuro-pneumonia," he favored the audience with a general oral talk upon the subject, which was highly appreciated. The subject being very familiar, and a disease commonly met by every practitioner, much was commented upon the treatment. Dr. Pearson narrated the latest treatment followed at the University. He prefers strophanthus to digitalis for weakness of the heart's action, owing to the latter drug producing an intermittent pulse after using for three days. He also considers it advisable to draw off the serum as soon as clear symptoms are in evidence, as he states the operation is too often performed with results fatal, in which case success might prevail if performed earlier. The subject was also discussed by Drs. Wehr, Longacre, E. D. Kohler, Huyett, Newhard, and Noack.

Dr. E. M. Ranck, Glenolden, favored the Association by an ably prepared paper on "Blood Sera," after which he was called upon by the President to give a general talk upon vaccines and antitoxins, he being an authority of no mean repute along that line. He said, in part, in the production of antitoxins, the selection of the horse is a matter of extreme importance, this work being under the immediate personal control of skilled veterinarians, who fix an absolute and invariable standard as to the character of the animal employed, each horse having to withstand a rigid physical examination, after which he is injected with tuberculin and mallein. After this inspection, the selected horses are placed and kept in a specially constructed stable that is a model of sanitary perfection. A very small proportion of horses meeting the rigid requirements of physical soundness and health will yield antitoxin of sufficient unit strength, and in consequence those are discarded.

The toxins are elaborated from the specific germ of the disease, cultivated in some suitable culture media. After the expiration of the period of time required to obtain the greatest strength, the bacteria are killed by the addition of trikresol to the cultures, which are then repeatedly filtered in order to remove the destroyed germs.

The definite unit strength of these toxins is determined by a series of injections into guinea-pigs, thus ascertaining the minimum quantity of toxin which proves fatal to a guinea-pig within a certain period of time. This quantity of toxin (unit strength) is now injected into the horse under aseptic conditions. These injections, small at first, are repeated at regular intervals in order to obtain the degree of tolerance of immunity a horse gradually acquires to the influence of the toxins upon the system, and the blood develops the property of neutralizing these toxins. The injections of toxins are repeated in gradually increasing doses once every week until the horse receives and tolerates, without untoward symptoms, a quantity of toxins equal to one thousand times the amount of the first injection, this process consuming, on the average, from four to six months.

The horse is now bled into a previously-sterilized parchment-covered jar, which is then allowed to stand for a few days, when the serum collects on the top, and the clot or solid constituents settle to the bottom of the jar. The serum is now removed by a tube and transferred to sterile jars. Contamination of the serum, he says, is absolutely impossible, as at no stage of the process of antitoxin preparation is it exposed to the outside air.

The antiseptic trikresol is now added as a preservative, after which the strength of the same is determined by experimenting upon guinea-pigs.

The subject was discussed by Drs. Schneider, Wehr, Newhard, and others. A vote of thanks was extended to Dr. Ranck for his instructive remarks.

Dr. Leonard Pearson entertained the audience for some time with a paper entitled "The Veterinary Teacher and Practitioner," after which he described his trip to the New England States in order to investigate the outbreak of the foot-and-mouth disease in that section. He gave an excellent general report, which was highly appreciated. He also referred to the experiments upon the immunization of cattle against tuberculosis, conducted at present by Dr. S. H. Gilliland, Assistant Bacteriologist of the State Live-stock Sanitary Board, and himself. Some experiments had been conducted by McFadyean in June, 1901, and in March, 1902, also by Von Behring in December, 1901, but the observation thus ascertained from their reports certify that their experiments are yet incomplete. Dr. Pearson says that tuberculosis of cattle has been the subject of special and extensive study and experimentation in the laboratory and research station of the Pennsylvania State Live-stock Sanitary Board since 1896, but it is only of recent occurrence, after many experiments, that the results prove encouraging in the direction of immunization. Much enthusiasm was expressed by the audience upon the remarks of Dr. Pearson, as many of the members were unaware of such existing project, and all present were heartily in sympathy with such a stride of advancement in our profession. We all sincerely hope the experiments under way may prove successful, thus restraining the most insidious contagious disease upon the earth.

Dr. S. G. Burkholder's essay, see page 7, "An Historical Essay on the Relation of the Veterinarian to the Medical Profession," was replete with interesting and instructive thoughts.

A vote of thanks was extended Drs. Pearson and Burkholder, and resolutions passed to that effect.

At 4.30 P.M. a motion was made and seconded to adjourn.

W. G. HUYETT,
Corresponding Secretary.

VETERINARY MEDICAL SOCIETY OF THE UNIVERSITY OF PENNSYLVANIA.

At the annual banquet of the Veterinary Medical Society of the University, given at the Bingham House, Tuesday evening, December 23, 1902, fifty members of the Society were in attendance. They entertained as their guests the Provost and Vice-Provost of the University, Dean Pearson and the members of the Veterinary Faculty. The room in which the dinner was served was tastefully decorated with flowers and with red and blue flags and bunting. Harry E. States, '03 Vet., the President of the Society, acted as toastmaster.

Among the invited guests and speakers were Dr. Charles C. Harrison, Dr. Edgar F. Smith, the Vice-Provost; Dr. Leonard Pearson, dean of the Department and also State Veterinarian, and the following members of the veterinary teaching staff: Dr. John W. Adams, Dr. M. E. Conard, Dr. S. H. Gilliland, Dr. W. Horace Hoskins, Dr. John Harshberger, and Dr. E. Stanton Muir.

The Provost was the first guest who was called upon to respond to a toast. He spoke very effectively on the importance of the live-stock industry and its bearings on those manufacturers who have to get their material from that source. He also dwelt upon the importance of veterinary science in maintaining the health of the live-stock and the prevention of disease, and concluded with a few touching remarks on his interest in the welfare of the Department. Vice-Provost Smith followed Dr. Harrison, speaking of the University generally. Dean Pearson spoke on the Veterinary Department as it is, its importance, and the outlook for its future. The Dean was followed by several different members of the Veterinary Faculty who made interesting remarks.

The Society is an undergraduate body and has been in existence almost since the founding of the Department at Pennsylvania. Its present membership consists of sixty-five students, recruited from all three classes in the Department. Harry E. States, '03, is President; Charles H. Woodruff, '03, Vice-President; John H. Morris, '04, Secretary, and W. D. Fuller, '03, Treasurer.

ONTARIO VETERINARY MEDICAL ASSOCIATION.

The annual meeting of the Association was held in the Veterinary College, Toronto, on December 24, 1902.

The President, Dr. J. H. Tennent, was in the chair. He opened the meeting by an excellent address, in which the object in view was evidently the mutual improvement of members in all branches of veterinary science, both practically and theoretically, and the advancement of the position and interests of the veterinary profession in the Province of Ontario. Several of the points brought up elicited considerable but amiable discussion, in which many members participated.

The minutes of the previous meeting were read and approved.

The Secretary-Treasurer and Registrar's report was then presented. It showed a large amount of correspondence, considerable printing, and a new copy of the *Register* issued, containing a full list of those registered, in accordance with the act of incorporation of the Ontario Veterinary Medical Association, complete up to July 31, 1902; also containing the Act of Incorporation.

Fifty-five graduates have registered since the last annual meeting. The finances are in good condition, there being $22 more in the hands of the Treasurer than at the opening of the meeting last year.

The following names were proposed and duly elected to membership: R. H. Cook, V. S., Malton; J. M. Young, V. S., Oil Springs; J. D. McLeod, V. S., Harrison, and A. E. James, V. S., Ottawa.

The business routine being concluded, at the invitation of Prof. A. Smith, the members adjourned for lunch.

The meeting opened again immediately after lunch.

Dr. J. D. O'Neil read an excellent and practical paper on "Soundness and Unsoundness in Horses, and the Duties and Liabilities of the Veterinary Practitioner in Successfully Acquitting Himself in the Performance of this Necessary and Important Duty."

Dr. S. E. Boulter contributed an article on a case of tetanus in the horse —evidently a very severe case.

Dr. R. Barnes also contributed a paper on "Tetanus" that was a severe case. The medicinal treatment consisted principally of frequent hypodermic injections of solutions of carbolic acid and glycerin in water. Complete recovery resulted after about forty days.

The reading of these papers elicited considerable discussion, in which a number of members participated. The discussions were instructive.

The President suggested that some of the members should volunteer to attend the next annual meeting and perform some of the interesting surgical operations before the members for mutual benefit.

In response, Dr. George would operate, and Dr. Brenton, of Detroit, was suggested as the surgeon to perform an operation for "roaring."

Dr. Stevens exhibited a very ingenious instrument of his own for grasping the fœtus in cases of difficult parturition.

Dr. Rutherford, of Ottawa, Chief Veterinary Surgeon of the Dominion of Canada, gave an eloquent and stirring address. He had resided and practised in the Province of Manitoba for several years. He said that no man can legally practice veterinary science in that Province unless he is a member of the Manitoba Veterinary Medical Association, and he trusted that the members of the Ontario Veterinary Medical Association by standing shoulder to shoulder would eventually obtain the same result in Ontario. He gave a most interesting account of the meeting of the American Veterinary Medical Association, recently held in Minneapolis, of which he had been elected Vice-President. He had attended that meeting. He said that the clinical work performed there was done by the most skilful practitioners in America. He had succeeded in inducing that Association to hold its next meeting in the city of Ottawa, Canada, and he strongly urged the members of the Ontario Veterinary Medical Association to attend that meeting, which will be held in September next.

The President and Dr. D. K. Smith were appointed to represent this Association at the American Veterinary Medical Association meeting in Ottawa, also to aid Dr. Rutherford in entertaining its members there, and the sum of $100 was appropriated to be forwarded to Dr. Rutherford to pay a share of the expenses of the American Veterinary Medical Association in Ottawa.

Among the most important communications read was one from the President of the Industrial Exhibition Association of Toronto, requesting the cordial approval and active support of the Ontario Veterinary Medical Association in holding a Dominion Exhibition in Toronto in 1903. A resolution to that effect was passed at once without a dissenting voice.

There having been some discussion on breaches of professional ethics, the Committee on the Revision of the By-laws requested permission to defer their report until the next meeting.

The election of officers then took place, with the result that all the officers of the Association were re-elected.

The sum of $25 was voted for a medal to be presented for competition to the graduating class of the Ontario Veterinary College at the next spring examinations.

Adjourned.

C. H. SWEETAPPLE, V.S.,
Secretary.

WOLVERINE VETERINARY MEDICAL ASSOCIATION.

THE second annual meeting of the Association was called to order in the Council room of the city of Lansing, at 2 P.M., by the Vice-President. President, Dr. W. A. McLean, being detained at home by sickness in his family, sent the following address, which was read by the Secretary:

GENTLEMEN OF THE WOLVERINE VETERINARY MEDICAL ASSOCIATION: I regret very much that it is impossible for me to be present at our annual meeting of 1902, hoping at the same time that there will be the usual large attendance, and that you will profit by each other's experience and research; also, that the different papers will be thoroughly discussed. Shall be much pleased to hear a favorable report from the Committee on Legislation, and for the members of the Association to combine their efforts and work for the passage of a bill to protect the interests of the veterinarians of the State of Michigan. Vice-President Hesseltine will be in a position to help us to some extent in this matter. The passage of such a law has been hanging fire for a number of years, and I don't see that we are any nearer proper veterinary legislation than many years ago. It is absolutely necessary that we should frame a law so as to help elevate the profession in this State.

I gave you my ideas at our last semi-annual meeting, held at Flint last July, which can be found in the minutes, and no doubt can be improved. I am anxious to see the time come when every person registered in this State shall be a graduate of a three years' college. We can by legislation *compel* the Ontario Veterinary College and the Grand Rapids Veterinary College to go to a three years' course; by so doing we will be doing justice to ourselves and to the citizens of the State.

I have written Dr. Palmer, of the Michigan State Veterinary Board, in regard to this matter, but as yet have no reply, although some six weeks have elapsed.

I am of the opinion that we have selected the wrong time in the year for our annual meeting—during the Christmas holidays—when many wish to take advantage of the excursion rates to visit friends at a distance; therefore would suggest a change of date of our annual meeting.

I am also under the impression that two meetings a year are too many, one of my reasons being based on the expense for persons living at a distance. I think one good meeting would be much better.

I am not a candidate for re-election for President.

Hoping you all may enjoy a prosperous and happy New Year,

I am as ever, yours,

W. A. MCLEAN, V.S.,
President.

The Vice-President, Dr. Hesseltine, then read the following address:

GENTLEMEN: Again I am given the pleasure and privilege of the opportunity of being with you at this the second annual meeting of the Wolverine Veterinary Medical Association.

As Vice-President of this Association and Chairman of our Disease and Legislative Committees, I realize that I have certain duties to perform at these meetings, but this time I must ask that I be excused in behalf of my brother members from making a full report and in covering the field thoroughly upon these subjects, of which jurisdiction I am held responsible by reason of my position in connection with this Association and my profession. I wish to say further that I would not ask for any excuse to be accepted.

For my part, in behalf of the members of this Association, if it were not for the fact that since our last meeting, in which I took a great interest in seeing that all were entertained; that the meeting in general was a success; that my time has been constantly occupied along other lines, yet those lines have not been of a detrimental character in accordance with the position I am holding in relation to my profession and my Association.

The various editorials that have appeared in our daily papers no doubt have informed many of you the position I have taken and the untiring efforts that I have made in trying to develop and incorporate a universally recognized scientific system for the teaching of the American horseshoers the true fundamental principles of a comparative branch of veterinary medicine and surgery, to be known as comparative digitalotomy. And while here I wish to say in behalf of my brother horseshoers of America that they wish to invite a more kindly feeling between the veterinarians and the masters, and that they do most heartily extend to the veterinarians fruits of fraternal unity in an effort to remove the present misunderstanding, grievances, and indifferences which to-day exist throughout this great united kingdom.

At the annual meeting of the M. M. H. A., held at Grand Rapids, September 1st and 2d, the subject in relation to the masters keeping cabinets of patent medicines in their shops for sale was brought up for discussion by myself. The subject received far more consideration at the hands of the delegates than I anticipated, and should I at this time attempt to predict the outcome of such a practice I would feel safe in saying that I fully believe that the day is not far distant when such practice will be completely abolished by the master shoers of America, and most any other practice that would tend to conflict or interfere in any way with the practice of the veterinarian would likewise be done away with; and in recognizing such movements on the part of the American shoers I feel that it behooves us as veterinarians to take such step as will show a return of appreciation upon our part as professional men.

American horseshoers fully realize to-day that they are no longer reprerentatives of a trade, but a profession. They are in every sense of the word professional men; they have taken steps that will lay the future foundation for the true teaching of a comparative branch of science which will be known as digitalotomy. . . The subject of legislation is very important and requires careful thought; true legislation will protect the practice of veterinary medicine and surgery. I have given the subject a great deal of thought and study, coming to the following conclusion:

That we can never expect the fulfilment of our desires and aims while divided among ourselves. The first steps that we should take are such as will cause complete unity of our ranks; to place ourselves in harmony, one with the other, using every effort to consolidate the two associations in one, because, never until we are united can we grow and prosper. . . . We need legislation to protect and govern the veterinarian; we need legislation to protect domesticated animals from the many contagious diseases to which they are heir; we need legislation to protect our meat food supply; lastly, but not least, we should have proper legislation to protect the veterinarian in collecting a proper compensation for services rendered and medicine furnished for the treatment of diseased animals. . . . If we were a united body we could demand our rights of the Legislature; but so long as we are divided, we cannot expect representatives of the House or Senate to heed our wants, needs, or desires.

Both sides of our divided forces have friends in the Legislature, therefore we must expect defeat. It is not money that we need to obtain legislation, but friendly relations among ourselves.

In addition to the foregoing I would suggest that our worthy President appoint a committee to draft a set of resolutions that may be acted upon by this Association, and a copy of it be sent to the Secretary of the Michigan Veterinary Medical Association, praying for unison and harmony and consolidation.

Minutes of the last meeting were read and adopted.

Report of the death of Dr. B. O. Johnson was officially announced, and a committee was appointed by the Chair to draft resolutions. The following named gentlemen were appointed: Drs. McCall, Elliott and Winegar.

Hon. Charles Staley, President of the Michigun Horseshoers' Association, by invitation, gave a very interesting address on the subject of "Higher Education of Horseshoers," and incidentally touched upon the subject of discord now existing in the veterinary profession of this State, suggesting that a remedy be sought, giving as his opinion that nothing short of amalgamation of the two associations could ever bring about unison in our ranks, and that he thought proper steps taken in this direction would be fruitful; that he had travelled over a goodly portion of the State and felt confident that he knew whereof he was speaking.

The remarks of President Staley were received with applause, and as he closed his remarks Dr. Conkey arose and gave to him a brief history of circumstances which culminated in the birth of the Wolverine Veterinary Association, the principal reason being the fact that the old Association refused to admit graduates of the Grand Rapids Veterinary College, which was a violation of the law under which they are chartered. The law plainly states that "any veterinary surgeon who has complied with the laws regulating the practice of the profession in this State may become members." However, if it is the pleasure of the old Association to amalgamate, we say amen to it, and further will vouch for each and every member of this Association doing likewise. In the meantime we are in a good healthy condition as to membership, numbering forty-one in good standing, with the prospect of a material increase, and we firmly believe that within two years we shall outnumber the old Association; but harmony is what we want, and I for one am ready to sacrifice much if we can only have harmony.

Dr. P. Hesseltine was the next speaker, and dwelt long and loud upon the hope of unison and harmony in our ranks; he also strongly advocated reciprocal relation between the Veterinary Association and the Master Horseshoers' Association. Occupying the chair, the doctor appointed a committee to draft resolutions along these lines.

A recess was taken to allow the committee time to draft resolutions on the death of our ex-President, Dr. B. O. Johnson, and also regarding the horseshoers and the Michigan State Veterinary Associations.

Meeting again called to order, and the following resolutions were read and ordered spread upon the minutes of the Association, and a copy to be sent to his widow at Benton Harbor, Mich.:

WHEREAS, Divine Providence has seen fit to remove from the midst of this Association our beloved brother and ex-President, Dr. B. O. Johnson, of Benton Harbor, Michigan, on the twenty-ninth day of November, 1902.

Resolved, That the members of this, the Wolverine Veterinary Medical Association, do extend heartfelt sympathy to his widow and children in their loss and bereavement of a kind and loving husband and father, assuring them that we feel deeply the loss of his presence and silence of his voice at our meetings.

Resolved, That these resolutions be spread upon the minutes of this meeting and that a copy of them be sent to the family at Benton Harbor, Michigan.

DR. A. E. MCCALL,
DR. WM. ELLIOTT,
DR. AMOS WINEGAR,
Committee.

The following resolutions were then adopted:

Resolved, That this Association, by a unanimous vote of all members present, extends the right hand of good fellowship to the Michigan Veterinary Medical Association; that in the consideration of the existing conditions which, up to the present time, have prevented the growth, advancement, and protection to the veterinary profession of the State of Michigan, do hereby ask that this subject be duly considered by a committee to be appointed at the first session of the annual meeting of the Michigan State Veterinary Association, for the purpose of effecting a complete settlement of all disputes, grievances, and differences now existing among the leading representatives of the two associations, said committee to be clothed with power to act.

Resolved, That the incoming Executive Board of this Association be instructed to meet and confer with said committee of the Michigan State Veterinary Medical Association, both committees having full power to act, so that the findings of said committees shall be final and binding upon their respective associations.

We hereby attach to and make a part of these resolutions our sentiment, position, and expression:

Resolved, That the Wolverine Veterinary Medical Association does extend the right hand of fellowship to the Michigan Horseshoers' Association; and also, be it extended to the National Horseshoers' Association of the United States of America.

Resolved, That the members of this Association use all reasonable means and their best effort for the promotion of harmony between the horseshoers and Veterinarians of the United States.

The Committee on Legislation having failed to offer anything for the consideration of the Association, the bill which appeared in the November number of the *National Veterinary Review* was placed in the hands of a special committee, and after some remodelling and a great deal of argument pro and con the following was unanimously adopted:

Resolved, That the following veterinary bill, which has been prepared by a special committee of this Association, and has been discussed in open meeting and found to be acceptable to the good wishes of the members of this Association, embodying all the aims and desires for the betterment of the present conditions, for the protection of the stock grower and practitioner of the State of Michigan.

Resolved, That this bill be considered with the foregoing resolutions and be brought before the Michigan Veterinary Association while in session, and that it be requested that a report of the same be submitted to the committee of the Wolverine Veterinary Medical Association.

Respectfully submitted,

DR. W. N. ARMSTRONG,
DR. CHAS. DONALD,
DR. L. L. CONKEY,
Special Committee.

Adopted unanimously.

A BILL

To regulate the practice of the veterinary profession in all of its branches in the State of Michigan, and to classify all those who are now engaged in the practice of veterinary medicine and surgery in any of its branches in this State.

The people of the State of Michigan enact:

SECTION 1. That all persons now engaged in the practice of veterinary medicine and surgery in this State, and holding a diploma issued by a recognized veterinary college, shall be known as the regular titled veterinarians of Michigan, and shall use the title or degree conferred by the college issuing their diploma; and if wishing to continue in practice shall, on or before July 1, 1903, file with the county clerk of the county in which they reside an application for registration.

All veterinarians registering under this section shall be eligible to any State appointment, and shall be exempt from jury duty in this State; their evidence shall be accepted when called upon in the capacity of an expert witness in all matters pertaining to the veterinary profession.

SEC. 2. All persons that have been registered by the Michigan State Veterinary Board by reason of having passed the examination of said Board, and all who may be registered in a like manner prior to July 1, 1903, shall be recognized as veterinarians of this State. The evidence of all such may be accepted as expert in any court of justice if called for that purpose.

SEC. 3. All men who have been in exclusive practice of the veterinary profession as a means of livelihood for five years or longer next prior to the passage of this act, and wishing to continue said veterinary practice, shall at any time prior to July 1, 1903, file with the county clerk of the county in which they reside an application for registration; said application bearing the signature of five freeholders of said county, sworn before a justice or notary public, and setting forth the fact that the applicant is personally known to them, and that he is qualified to practice under this act.

All those registering under this section shall be known as the Time Clause Veterinarians of Michigan, with the title of "T. C. V."

SEC. 4. Any person practicing the veterinary profession in this State and wishing to advertise his business in any manner whatsoever shall confine his title, degree, or abbreviations thereof to the section under which he is registered, viz., sections 1, 2, or 3 of this act.

SEC. 5. After July 1, 1903, no person shall be allowed to practice veterinary medicine or surgery in any of their branches in the State of Michigan unless he has been registered under preceding acts or shall become registered under the expressed provisions of this act. After the above date any person wishing to begin the practice of veterinary medicine or surgery in any of their branches in this State shall, before doing so, apply to and receive from the county clerk of the county in which he resides, a certificate of registration. All certificates of registration must be framed and hung in a conspicuous place in the office of the person to whom it has been issued.

Veterinarians residing outside of Michigan, on the border lines, and qualified to register under this act may register with the clerk of the county nearest to which they reside, and practice in this State,

Provided, That the State or county in which they reside shall have equally stringent laws governing the practice of veterinary medicine and surgery as the laws of this State, and shall accord to the veterinary profession of this State the same privileges.

SEC. 6. On and after the passage of this act it shall be unlawful for the clerk of any county in the State of Michigan to enter the name of any person upon the books of his office as a veterinarian, veterinary physician, or veterinary surgeon unless the applicant for registration shall furnish to said county clerk satisfactory evidence of his identity and qualifications to become registered under the provisions of this act, as hereinbefore provided.

From and after July 1, 1903, it shall be unlawful for the clerk of any county to register any person under this act except upon the presentation of a diploma issued to the applicant by a regularly incorporated veterinary college; said college shall have a curriculum of at least three years of six months each.

The county clerk may demand and shall receive a fee of one ($1.00) dollar for recording, filing, and issuing each certificate of registration as contemplated in this act.

SEC. 7. Any person violating any of the provisions of this act shall be deemed guilty of a misdemeanor, and shall be proceeded against by the prosecuting attorney of the county in which the offence is committed, and upon conviction shall be fined not less than twenty-five nor more than one hundred dollars, or he may be confined in the county jail for not less than thirty nor more than ninety days, or he may be punished by both fine and imprisonment, at the discretion of the court.

SEC. 8. All acts or parts of acts controverting the provisions of this act are hereby repealed.

Paper entitled "The Foot of the Horse" was read by Dr. Conkey. Discussion led by Dr. McCall, followed by Drs. Ackerson, Armstrong, Elliott, Winegar, Donald, Nelson, Compton, and Hesseltine, was very interesting and brought out many instructive points.

The following-named gentlemen were admitted to membership: Drs. E. L. Krieger, J. D. Bell, Amos Winegar, J. Wardle and G. H. Du Boice.

The name of Mr. Francois, of Kalamazoo, that came before the Association at the last meeting, held at Flint, and was to be ratified conditionally, was stricken from our books, he not having complied with the conditions.

Report of the Committee on Publication was called for. Dr. Conkey, chairman of this committee, reported that the proceedings of the last meeting had gone to the press direct from the stenographer, and that the committee had never seen them until they appeared in the *International Veterinary Review*. This accounts for the many errors that appeared, to the discomfort of not a few of the members. Some corrections have been made, and the requisite number of copies are to be filed with the different State institutions by the Secretary this month.

On motion of Dr. Armstrong, seconded by Dr. Ackerson, the report was accepted.

The Secretary was instructed to send copies of the resolutions on the subject of the amalgamation of the two associations to Drs. Giffen, of Detroit; Jopling, of Owasso; H. Smith, of Albion; J. Black, of Richmond; H. F. Palmer, J. J. Joy, and S. Brenton, of Detroit; Charles Smith, Saginaw; Mr. Buckley, of Detroit; Mr. Staley, of Lansing, and Mr. Wm. Wheaton, of Grand Rapids, and a copy to each member of the Executive Committee of the W. V. M. A. The President and the Secretary of the National Horseshoers' Association is each to receive a copy.

ELECTION OF OFFICERS. Dr. W. N. Armstrong, of Concord, was elected President; Dr. Donald, of Bay City, First Vice-President; Dr. McCall, of Memphis, Second Vice-President; and Dr. W. W. Thorburn, of Lansing, Secretary and Treasurer.

BANQUET. At 7.30 an adjournment was taken, all repairing to Hotel Butler, where a sumptuous spread had been prepared, consisting of the most delicious fruits, nuts, and viands, both local and tropical, that money could procure. Seven courses were served in a most elegant and approved style. All were loud in their praise of the repast. A vote of thanks was tendered to Mr. I. M. Brown, proprietor of the hotel.

Dr. P. Hesseltine, of Flint, acted as toastmaster, and was responded to by Hon. Dr. Nottingham, a member of the House of Representatives; Hon. F. L. Dodge, an ex-member of the Legislature; Hon. Charles Staley, President of the Michigan Master Horseshoers' Association; Hon. Mr. Petty, ex-Organizer of Horseshoers, and a large number of the members present.

INSTALLATION OF OFFICERS. After the banquet an evening session was held in the hotel parlors at which the installation of officers took place. Dr. A. E. McCall was elected to fill a vacancy in the Board of Directors, to succeed Dr. E. E. Patterson, whose term of office had expired.

President Armstrong appointed the following-named gentlemen to read papers at our next annual meeting: Drs. Ackerson, McCall, Compton, Winegar, Donald, Elliott, Hesseltine and Conkey.

Adjourned to meet at Dr. Thorburn's hospital at 9 A. M.

The Association met at Dr. Thorburn's hospital at 9 A.M., January 1, 1903. There were an even dozen clinical subjects in the hospital awaiting the surgeon's knife. Four sows were castrated, two bitches, one male dog, two cats, and a number of cockerels. There were a few horses for examination. The work was quite well divided among the older members of the profession. This work consumed the forenoon.

After dinner the Association was called to order in the parlors of Hotel Butler at 1.30.

The President, Dr. W. N. Armstrong, appointed the following committees:

Committee on Diseases.—Drs. Nichols, Ackerson, Stevenson, and Compton.

Committee on Finance.—Drs. Nelson, Wardle, Dr. Winegar, and Elliott.

Committee on Publication.—Drs. Conkey, McCall, Bell, and Powers.

Committee on Legislation.—Drs. Thorburn, Donald, Hesseltine, and Patterson.

From 2.30 to 4 P.M. much routine business was transacted, after which the President declared all business complete, and opened an "Experience Meeting," which was heartily enjoyed by all present, every man having something to offer for the good of the profession.

At six o'clock a final adjournment was taken, thus ending the most pleasant, enjoyable, and instructive meetings in the history of the Wolverine Veterinary Medical Association.

L. L. CONKEY, V.S.,
Secretary pro tem.

NOTES.

The sale of the famous pacer "Dan Patch" for the sum of sixty thousand dollars to the International Stock Food Company, is a phenomenal price for even a stallion. He will be continued in the stud and give exhibition miles of speed.

The Western Veterinary College, of Kansas City, Missouri, established by the late Junius H. Wattles, will be maintained by his son, Dr. Junius H. Wattles, Jr., who had been associated with his father in the school since its establishment.

Mr. William C. Whitney provided some time ago a fund to enable the American Museum of Natural History to search the plains of the West for the remains of the primeval horse, and agents of that institution have for the past two years been exploring all the way from Montana to Texas. Many interesting specimens have been found, some of which are now in the museum at New York. The fossil remains of a small herd of the species known as the hipparion were discovered a few months ago, and it is believed that a perfect specimen can be constructed from them.

PERSONALS.

Dr. Leonard Pearson, of Philadelphia, Pa., was a visitor to Boston in November in regard to some national veterinary sanitary work. Dr. Pearson was joined by Dr. James Law, of Ithaca, N. Y., and with Dr. John R. Mohler, of the Bureau of Animal Industry, Washington, D. C. An investigation proved the existence of a most serious and widespread outbreak of foot-and-mouth disease extending over four of the New England States.

Dr. William Dougherty, of Baltimore, Md., was a Philadelphia visitor in November. His advocacy of a Veterinary Assurance Society has been the means of bringing its importance very forcibly to the attention of the profession.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, addressed the Philadelphia Pathological Society in November on the subject of "Immunizing Cattle as a Measure to Protect Cattle from Tuberculosis."

Dr. Otto Noack, of Reading, Pa., was a visitor to Philadelphia, Pa., the latter part of November, calling at the JOURNAL office.

The Massachusetts Legislature for the present session has two veterinarians among its representatives. Dr. James B. Paige, of Amherst, fills one of the places for his district, and Dr. Phelps, of Methuen, who has not been in active professional work, but is a graduate of the Harvard Veterinary Department, fills a similar post.

Dr. Leonard Pearson, State Veterinarian, was a Harrisburg (Pa.) visitor early in December. The action of Governor Yates, of Illinois, in quarantining against Pennsylvania on account of foot-and-mouth disease was the source of an important meeting of the State Live-stock Sanitary Board.

Dr. William Herbert Lowe, President of the Veterinary Medical Association of New Jersey, was the guest of Dr. T. Earle Budd, of Orange, N. J., on December 22d, at the annual dinner of the New England Society in commemoration of the landing of the Pilgrim Fathers.

The many friends of Dr. George H. Berns, Brooklyn, N. Y., and those of the profession who have had the pleasure of meeting his daughter at the A. V. M. A. conventions, will be glad to learn of her assured recovery from the attack of typhoid fever that for many weeks caused her to lie at death's door.

The editor of the JOURNAL makes due acknowledgment to the "Sage of Reading" for the bountiful Christmas supply of the famous "Berks County pretzels" so generously bestowed. Not like coal "we have them to burn," and invite our friends to call around and help themselves.

Prof. A. Smith, of Toronto, Canada, in his trip abroad during the past summer met many of the profession who are active in educational and sanitary work. The schools on the other side do not seem to be enjoying as much support as those on this side of the water.

Philadelphia's milk inspectors, Drs. G. R. Hartman and F. R. Smith, continue to pursue those who expose for sale milk from unhealthy cows. In December the conviction of a dealer was had where an inflamed udder was ignored by a producer and dealer.

Dr. E. M. Ranck, of Glenolden, Pa., is a member of the Philadelphia Pathological Society. He was among those who entertained Dr. Jacobi, of New York, of the Pediatric Society of Greater New York, at their December meeting.

Dr. John J. Repp, of Ames, Iowa, is an active State association member in his State and a strong power in influencing others to be more active in association work.

Dr. Leonard Pearson, of Philadelphia, addressed the Grangers at Clearfield, Pennsylvania, early in December. Dr. Pearson has done an excellent work among those engaged in dairying and other branches of the live-stock industry in Pennsylvania.

The JOURNAL is in receipt of a beautiful calendar for the new year from Dr. H. P. Jackson, of Sewickley, Pa., sent out in connection with the livery and boarding stable maintained by our esteemed colleague.

Drs. James T. McAnulty and T. J. Kean, of Philadelphia, still continue to take an active interest in better educating the members of the horseshoers' organization in Eastern Pennsylvania.

Dr. Richard H. Powers, of Fort Walla Walla, Washington, has been transferred to Fort Riley, Kansas. Dr. Powers is a veterinarian to the artillery corps at that station.

Drs. Leonard Pearson, of Philadelphia, and E. M. Ranck, of Glenolden, Pa., were on the programme for the December meeting of the Schuylkill Valley Veterinary Medical Association.

Dr. W. L. Rhoads, of Lansdowne, Pa., takes a very active part in the Road Drivers' Association of Pennsylvania and all their plans for the establishment of "good roads."

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TRYPANOSOMES, WITH SPECIAL REFERENCE TO SURRA.[1]

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The subject of my paper is trypanosomes, with special reference to the disease called surra, which is epidemic in the Philippines at present, and, as a result, our government, with its faithful workers, are clearing up many of the dark problems concerning the etiology and pathology of this disease, which is of interest to us as scientific students of comparative medicine. The family trypanosomidæ, germs trypanosoma, of which there are many species, belongs to the flagellate class of protozoa. A broad term that has lately been introduced into comparative medicine to designate any infection of any animal with parasites belonging to the flagellate family trypanosomidæ is trypanosomiasis. This will no doubt lessen the confusion brought about by some sixty vernacular names which have appeared in the medical literature upon this subject, based principally upon prominent symptoms of the disease in question. There are several different kinds of trypanosomiasis, among which we may mention the following in particular: 1. Surra, a disease of horses, camels, elephants, and certain other animals of India, where it is endemic; it is attributed to trypanosoma Evansi. 2. Nagana, or tsetse fly disease of Africa, affecting cattle, horses, mules, asses, antelopes, camels, and domestic animals, and is attributed to trypanosoma Brucii. 3. Rat trypanosomiasis, attributed to trypanosoma Lewisi, which seems to be identical with the surra organism. No doubt the rat is capable of acting as an intermediate host for all species of trypanosoma. The life cycle of the different species of trypanosoma

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[1] Read before the McFarland Pathological Society of the Medico-Chirurgical College.

(if there be such) has not been carefully studied as yet, but it is highly probable that the cycle of changes that the parasite undergoes simulates that of the malarial parasite of man in many respects, in that there is an asexual and sexual stage of development with symbiosis or sexual conjugation and resulting zygote stage in a definitive host, as one or more species of tabanidae (gad flies). The parasite of surra, or trypanosoma Evansi, resembles a whip-like worm. Its length is from 10 to 12 microns, and is from 1 to 1.5 microns in diameter through its body. The neck is nearly one-half its length, tapering gradually to a point representing the mouth. It has a limiting membrane, which is well-defined. The contour in most cases is symmetrical, but in some the body-line is quite irregular. The body, which is the larger part of the parasite, contains granular material and clear spaces, or vacuoles, which latter vary in size and number. The granular material does not extend to the neck. The parasite is actively motile, having both a vermicular and spiral movement. It moves forward in a very peculiar manner. The long, whip-like process is thrust forward by a spirillar motion, followed by a contraction of the body. Two sizes of the parasite have been observed. The larger appears to be more numerous and contains considerably more granular material than the smaller, and usually two or more vacuoles, which, no doubt, are pulsating and give rise to protoplasmic currents. Whether these two sizes represent male and female has not been determined; however, the union of the large and small parasites has been observed in such a way as to lead the observer to think that such union was something more than accidental. The organism appears to be a strict parasite, as it lives but a short time after removal from the body. The longest time which it has been kept in blood serum was not more than ten hours. It is easy to detect in microscopic examination of fresh blood films and readily takes the nuclear stains. The pathological change caused by this parasite is a rapid destruction of red corpuscles, causing an acute and profound anæmia. The changes occur in the blood coincident to the invasion of the parasite. In one horse that had been ill seven days the red blood cells numbered 3,500,000, the white cells 14,000. The blood count of a healthy horse taken as comparison gave red blood cells 6,900,000, white cells 9800. There is also a slight oligochromæmia, however, as in pernicious anæmia. There is a greater amount of hæmoglobin in each red blood cell than during health. Surra has been known in India for several generations. The attention of the rest of the world was called to this disease in a report to the government of India by Dr. Griffith Evans in the fall of 1880. Since then numerous papers on the subject have been written by English veterinarians and physicians, and it was not until the present epidemic in the Philippines that our government has taken up the study of trypanosomatic diseases. It is not positively known whether surra has existed in the Philippines many years or not. If of recent introduction, one of the explanations is that it was carried to China by the English troops from India, and that our troops carried it from China to the Philippines. However, this explanation is not in accord with the statements made by Drs. Slee and Kinyoun, who claim that surra was present in the Philippines before our troops went to China. It has long been observed that surra is a disease that is prone to appear and spread during or immediately following heavy rainfalls; also, that it is more common in the lowlands in the vicinity of water, as canals and rivers; however, sporadic cases may occur in the dry and hot seasons of the year. From these facts flies were given some study. In dry weather biting flies are not so active as in moist weather, and flies which are in a pupal stage are not so likely to issue from their dormant condition. However, with the advent of such conditions that prevail during the rainy season, flies which are in a pupal stage come forth from the dry ground and proceed to breed rapidly. Thus during and following rainfall there would be more biting insects flying; hence there is a greater chance of spreading the disease by infection.

With reference to sex this plays no rôle, as horses and mares are affected with surra alike. Australian horses are much more subject to the disease than are the Asiatic horses, and it is said that white and gray mules are more susceptible than darker animals; at least, flies attack light-colored animals more than they do dark, as the mosquito attacks whites more than they do negroes. Surra is not confined to horses, asses, and mules alone, but outbreaks of the disease are reported also among camels, elephants, cats, and dogs, and the disease has been transmitted by inoculation to cattle, buffalos, sheep, goats, rabbits, guinea-pigs, rats, and monkeys. The limits of its infectivity are not yet established, and thus for the present all mammals must be considered as possible carriers of the disease until negative experiments prove them to be refractory. No birds or amphibians are known to harbor the parasite. Nearly all authors agree that surra in horses and camels is invariably fatal, and although some few cases are said to have made slow progress in the disease, alternating better and worse for over a year, they all eventually succumb. Burke says that there is probably no disease in which the mortality is so high as in pernicious anæmia, which he identifies with surra. One author has seen all the dogs of a village swept off by this disease after eating surra carcasses. Cats also take the disease in the same way. Whether the dogs were actually infected through eating the meat, or whether the carcasses had attracted flies which in turn had bitten the dogs, seems to be an open question. However, both explanations seem plausible, for the parasites might enter the dogs through some wound in the mouth such as could easily be made while gnawing bones, as experiments carried out by Rodgers show that if surra blood is fed to an animal with an abraded mucous membrane with which the blood comes in contact, infection will take place; *per contra*, if there is no abrasion no infection follows. However, it seems possible that the parasites might force their way through the intestinal mucosa, as the trichinæ spiralis and tubercle bacillus.

Opinions differ as to the source of infection by the parasite of surra. While the drinking water and grain-containing feces of rats have been viewed with suspicion by prominent authorities, most authors now believe that flies of the family tabanidæ (gad flies) act as transmitters of the organism. This latter view is strongly supported by analogy, for nagana, which is also caused by a trypanosome—and some writers consider nagana as nearly, if not quite, identical with surra—is carried by the tsetse fly, and trypanosomiasis of rats have been shown to be transmitted by fleas, while lice may also disseminate the same parasite. Lingard demonstrated that the body fluids of certain flies, after sucking the blood of surra animals, contained trypanosoma in varying numbers; and, further, that healthy animals, when inoculated with such material, contracted the disease after a period of incubation.

These facts, taken in connection with the recent experiments on nagana and rat trypanosomiasis, indicate very strongly that surra is transmitted by dipterous insects, as gad flies. The fly theory of surra explains satisfactorily a number of points which have long been observed in connection with this disease, that is, that surra is a disease of wet weather, as has already been pointed out, and biting flies are practically creatures of moisture and breed very rapidly in wet weather. Howard, in discussing the fly family, some of which are the transmitters of surra, if not the definitive host for trypanosoma Evansi, says: "The adult flies are great water drinkers, and are usually most abundant in the vicinity of inland ponds and streams."

Noting this fact, Porchinsky, the Russian entomologist, has destroyed great numbers of the larvæ of flies by coating such ponds with kerosene. The larvæ live in the earth or in water, and are carnivorous, feeding upon soft-bodied insects and water snails. The spindle-shaped brown or black eggs are deposited in summer in groups attached to the leaves or stems of herbage. The gad flies vary greatly in color and size, of which there are about 1500 species, 200 of which occur in this country, and the largest of which is tabanus Americanus, which is 1¼ inches long and has a wing-spread of 2½ inches.

The fly that seems to be the common transmitter of surra in the Philippines is stomoxys calcitrous, leg-sticker, or common biting stable-fly, in which has been repeatedly found the parasite of surra, both in the stomach and proboscis. The few experiments that have been carried out thus far as to a life cycle of the parasite in this fly have been negative, and if there is such it is short. Birds have been shown to be transmitters of surra by their blood-stained beaks and soiled feet, with undried trypanosomatic blood coming in contact with a raw surface, as galls of other animals. This shows, as in malaria, that the blood containing the parasites can be directly conveyed to another animal and cause the disease. Congenital infection is not known. Infection from drinking stagnant water and eating vegetation grown upon land subject to inundation seems to be of little moment as an etiological factor in the production of surra, as Pease has observed the most careful precautions taken as to boiling the water and feeding nothing but select hay and grain to the animals—in fact, all imaginable precautions were taken to prevent the introduction of the disease—and still the disease appeared and every single animal perished.

It seems that the most probable transmitter of the disease was lost sight of, as they were not thoroughly protected from the suctional horsefly. As to the clinical symptoms of surra, there is no history of a definite onset. There is rarely an opportunity to note early symptoms, as the attack is a mild one and we may not notice such prodromes as that of the horse. Being somewhat dull and listless, he may be off his feed for a few days and stumble during action, and may be leg-weary, but after a few days' rest the animal apparently recovers. The period of incubation is apparently subject to considerable variation, and may be from six, ten, to twenty days. With the true invasion the prodromal symptoms are exaggerated and the skin is hot and dry, and we have anorexia and polydipsia as prominent symptoms. Temperature more or less elevated; pulse full and frequent, 56 to 64 beats per minute. The mucosa of the conjunctiva, especially that covering the membrana nictitans, is the seat of red patches of ecchymoses. There are catarrhal symptoms, with excessive lacrymation and mucous discharge from the nostrils (coryza), with snuffling breathing. There may be a general or local urticarial eruption. There is more or less œdema of the limbs about the fetlocks and hocks and beneath the belly and chest. This dropsical swelling sometimes subsides for a time. There is some glandular enlargement, especially the submaxillary glands. There may be ulceration of the nasal mucous membrane, tongue, and buccal cavity. The genitaliæ are markedly affected in this disease. In mares the mucous membrane of the vagina is decidedly yellow, and there are numerous petechia on the vulva and in the vagina, and frequent symptoms of horsing, due, no doubt, to the mechanical irritation that is kept up in these parts.

The parallel to this sexual phenomenon of mares is seen in male animals, who are visited with frequent and uncalled-for attacks of priapism, which may be due to irritation of the genito-spinal centre in the cord, but no doubt is associated with thrombi in the erectile tissue of the penis, or there may be embolic plugging of the vessels. Nervous symptoms are present, as stringhalt, dragging of the hind limbs, muscular tremors, and in some cases paralysis of the hind quarters. Gurgling and tympanitis are prominent symptoms. Respiration is usually accelerated from the first and breathing appears to be entirely abdominal. Cheyne-Stokes respiration has been noted toward the last in a few cases. The pulse is accelerated at first. It ranges between 40 and 90 beats per minute, and may reach as high as 120 just before death. It tends to be frequent during the paroxysms of fever, but during the apyrexial period falls to about normal. The fever is of an intermittent and remittent type, and somewhat resembles the fever of malaria in its behavior. However, the paroxysms of fever are much longer in surra and appears at irregular periods of time. The duration of surra varies with the species of animal affected, their age and general condition, the average duration being about two months, when death occurs from general asthenia. Immediate death is often brought about by ante-mortem clot in the heart, or simply failure of the heart's action as a result of debility. Post-mortem examination does not reveal any organic changes in the liver, kidneys, heart, spleen, lungs, and mucous membrane of stomach and intestines. No doubt most of the changes are of a functional character, due to the profound anæmia. Rigor mortis is normal, and the animal presents a dreadfully emaciated appearance. The mucous membranes are of a yellow color, while the muscles are dark red in color; in short, most of the changes simulate those of pernicious anæmia. Pneumonia, nephritis, pleurisy, and pericarditis often enter in as complications, and tend to hasten the end.

As to the treatment of surra, it is prophylactic rather than curative, as our most powerful parasiticides and drugs that are destructive to lower forms of life have been used with negative results. However, arsenic in the form of liquor potassi arsenitis given intravenously has been found to be destructive to the parasites in a few cases. No doubt its effect as a hæmaturic and glandular stimulant increasing the number of red corpuscles and the amount of hæmaglobin, thereby lessening the progressive and destructive anæmia and its tonic impression on the nerve centres and mucous membranes, overshadows its destructive action on the parasites, which is evanescent in character. The treatment which demands our attention, as in all other diseases of this nature, is prophylaxis, and in closing depends upon, first, isolation and quarantine of infected animals or animals suspected of infection, and protecting them from flies, if they have wounds or sores of any kind; second, protection of stocks from flies in wet weather by smearing and by the use of smudges; third, and most important, is to exterminate the transmitter by preventing flies from breeding by doing away with the outside manure-pile and by the free use of kerosene and chlorinated lime.

PRESIDENT'S ADDRESS.[1]

BY WILLIAM HERBERT LOWE, D.V.S.,
PATERSON, N. J.

FELLOW-MEMBERS AND COLLEAGUES: The veterinarian is a student of life. The Bible and scientific research agree that vegetable and animal life existed on this earth before man, and the veterinarian believes in beginning his studies at the beginning for the benefit of animal life in general as well as for the benefit of man himself. There are two worlds of life that man cannot see unaided. In one the organisms are so infinitesimally small that they cannot be seen with the naked eye, and in the other the beings cannot be seen with the naked eye because they are beyond his horizon. As man has dominion over the lower animals it is incumbent upon him, in the very nature of things, that certain men should make a study and practice of animal or veterinary science for the benefit of our material and business prosperity, as well as for such knowledge as concerns the health and lives of ourselves.

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[1] Delivered before the Veterinary Medical Association of New Jersey, at Trenton, January 8, 1903.

Some people do not like the profession of the veterinarian, because in his practice he has to go into stables, treat the accidents and ailments of animals, and come in contact with attendants of animals.

I would like to remind these people of the incident of Christ's birth; how He was born in a stable, wrapped in swaddling clothes, and laid in a manger with the cattle. He was not contaminated, and neither will anyone of to-day be if he is properly constituted and has right and noble impulses. I allude to the incident of Christ's birth at this time simply to remind superficial people that it is always well to have a full understanding of any subject before passing judgment upon it.

Experiments made upon animals during the last few years, the study of vegetable and animal life in its elementary and minutest forms, together with recent discoveries in chemistry, are exceedingly rich in the results of new discoveries and important investigations which have revolutionized the previously conceived ideas of medical men as to the etiology of disease, which are not only of great practical importance to the veterinarian in his practice, but are of vital importance to mankind, since they furnish the foundation for modern and intelligent treatment of many of the diseases that afflict the human family.

The fundamental facts of the pathology of the more common of the infectious diseases of animals in the light of our present day knowledge will be given us to-day in a concise form, and illustrated by the stereopticon by one who stands in the front rank among American comparative pathologists and bacteriologists.

During the last three years the veterinary profession of New Jersey has been making history that will ever be of increasing benefit and advantage to the people of our State, and an enduring honor to the veterinarians who made possible the triumph and achievements that we record to-day. I will not dwell upon the recent struggles and labors of many loyal members of this organization, for the work they did and the personal sacrifices they made are still fresh in our memories.

Veterinary annals will record three triumphant days in New Jersey. The first is January 11, 1900, which day witnessed one of the most remarkable gatherings that ever occurred in the history of veterinary medicine, when there gathered together the largest number of veterinarians that had ever assembled at one time in New Jersey, and resulted in the surrender of two State charters and seals and the successful and complete amalgamation of three State societies in one strong, harmonious body.

The second triumphant day was March 17, 1902, when Governor Franklin Murphy signed Senate Bill No. 76, by Senator Wood McKee, entitled "An act to regulate the practice of veterinary medicine, surgery, and dentistry in the State of New Jersey, to license veterinarians, and to punish persons violating the provisions thereof," thus making this bill a sovereign law of our State. This law is known as Chapter 18, Laws of 1902.

The third triumphant day was May 5, 1902, when the five members of the State Board of Veterinary Medical Examiners appointed by Governor Murphy took the oath of office in the State House and organized the veterinary board, pursuant to the provisions of the new law.

I wish to emphasize the fact that the enactment of this law, creating a State board of veterinary medical examiners to regulate the practice of veterinary medicine, surgery, and dentistry in the State of New Jersey, to license veterinarians and to punish persons violating the provisions thereof, was made in recognition of the necessity and value of competent veterinary service to live-stock owners, agricultural and dairy interests, and the preservation of public health; in other words, to protect the public from charlatans and quacks rather than to protect competent veterinarians, for the qualified veterinarian does not need any such protection.

The movement inaugurated this year to organize local societies in the respective counties of the State in affiliation with the Veterinary Medical Association of New Jersey, is one to which I attach a great deal of importance. I am very proud to say that the movement was started in my own county, and that on July 7, 1902, the practitioners of this county organized the Passaic County Veterinary Medical Association, which meets monthly, and the meetings are well attended. Every licensed practitioner in the county, now nineteen in number, is an earnest member and staunch supporter of the local organization. Every member signed the constitution, by-laws, code of ethics, and schedule of fees adopted by the society. The members are all pledged, *upon their honor*, to support the constitution, by-laws, code of ethics, and schedule of fees. I am gratified and delighted to be able to say that each member takes much pride in fulfilling his obligations and extending courtesies to his brother practitioners, that add much to the pleasure and satisfaction of practice. Local societies should be organized in such counties as have a sufficient number of practitioners to warrant it, each in affiliation with the State association.

One of the most noteworthy events in the veterinary world that occurred during the first year of the twentieth century was the meeting of the American Veterinary Medical Association at Atlantic City, during the first week in September, 1901, where gathered together the representative veterinarians of the entire American continent. It was the distinguished privilege of the Veterinary Medical Association of New Jersey to welcome and entertain the veterinary hosts at this Mecca by the sea. The achievements of this meeting add also to the recent history the profession has been making in New Jersey.

The State Laboratory of Hygiene is now located at Trenton, under the supervision of the State Board of Health. The work is conducted free of charge and it consists in examination for diagnosis in the various affections which are produced by micro-organisms. Communicable diseases of whatever character, whether peculiar to man or to the lower animals, are investigated, and a diagnosis is made when possible. Veterinarians should avail themselves of the use of the laboratory in cases of communicable diseases. The State Board of Health furnishes blanks for reporting contagious diseases in animals. Veterinary practitioners should report all cases of contagious diseases to the State Board of Health on the blanks furnished by the Board.

In the year 1862, an act was passed by Congress providing for the establishment of State agricultural colleges for the teaching of agriculture and mechanical arts; and in 1887 Congress passed an act establishing agricultural experiment stations in connection with agricultural colleges for original research into "the physiology of plants and animals, the disease to which they are severally subject, with the remedies for the same."

In other words, Congress several years ago provided for original research in veterinary science as well as for its practical application. I have not had an opportunity, much as I should have liked to have had, of visiting our State Agricultural College and Experiment Station. I would recommend that this Association appoint a committee to make such visit and ascertain what is being done along the lines of modern veterinary science and art, and if this branch of the work is in the hands of qualified veterinarians, or whether laymen and men of other professions are engaged in it.

I would recommend that this Association adopt a two days' session at its annual meetings, and that it start a State Veterinary Library. Your President's office has been virtually a veterinary bureau of information during the last two years. The correspondence has been such as to require much time and daily attendance.

Among the positions that New Jersey veterinarians have filled with credit during the past two years are: Health Officer of Summit; Assistant Bacteriologist of the Health Department of Newark; Veterinarian to the Essex Troop; Veterinarian to the Atlantic City Horse Show; Chairman and Members of Committee on Animal Diseases and Animal Food of the New Jersey Sanitary Association; Veterinarian to Local and City Boards of Health, and City Veterinarian to some of our larger cities.

I wish in behalf of the Veterinary Medical Association of New Jersey to take this opportunity to publicly acknowledge the great debt of gratitude the profession of our State owes to the *American Veterinary Review* and to the JOURNAL OF COMPARATIVE MEDICINE AND VETERINARY ARCHIVES. One of the greatest sources of encouragement in the work of organization and legislation was the ever earnest and able support by both these journals. Veterinary journalism in this country has become a power in the profession. I do not believe that there is another single factor that is equal to the veterinary press in promoting the individual and common interests of the profession.

The veterinarian cannot be up to date in his knowledge and his methods of practice, unless he knows what is going on in the veterinary world. I cannot see how a veterinarian can get along without his *Review* or his JOURNAL. If he does, he is simply starving his mind of such information as would go to enrich it and make him a better and more successful practitioner. He is not only doing an injustice to himself by not keeping in touch with the advance work of the profession, but he is doing an injustice to his clients, and as a natural consequence he is the sufferer in the end. There is no investment that pays a practitioner such large returns as his subscription to the profession's periodicals and his dues to his State Association.

Do not neglect to contribute your share of knowledge and experience to the columns of the veterinary press. I would suggest that you do not confine your reports to those of cases of exceptional and rare occurrence, for it is often in some little point in connection with routine manipulation, or in the treatment of the more common diseases, that the greatest benefit is derived from reporting and recording your experience.

A recent poll of one of the most prosperous of the Western States developed the amazing fact that there were nearly one hundred graduated veterinarians in that State who are not subscribers to any American or foreign veterinary journal. Any comment is unnecessary. There are two things, I am sure, that every progressive, up-to-date veterinary practitioner of New Jersey will not be found wanting in—one is, he will be found to be a staunch and earnest member of the Veterinary Medical Association of New Jersey, and the other is, that he is a subscriber to at least one veterinary periodical.

It seems to me that it would be a great advantage in many ways if we had a State board or bureau of animal industry, with a State Veterinarian who would be Chief of the said board or bureau, somewhat on the same plan as the United States Bureau of Animal Industry, instead of having veterinary matters of the State connected with several of the different State bodies without professional directorship, as is now the case. It might be well for this Association to appoint a conference committee to see if a plan could not be adopted that would be satisfactory to the State Board of Agriculture, the State Board of Health, the Tuberculosis Commission, and all concerned. It is all right to have veterinarians make inspections and so on, but there should be a State Veterinarian at Trenton to direct the work along modern scientific lines. As soon as plans can be perfected that will be satisfactory to the various bodies concerned, I would recommend that steps be taken to secure the necessary legislation. Our agricultural and dairy interests, as well as the preservation of the public health, demand that a qualified veterinarian be the chief or director of the veterinary work of the State.

Gentlemen, just think of it! The Legislature last winter authorized our good friend the State Entomologist to chase mosquitoes, and appropriated $10,000 for his use (which was proper), yet the animal wealth of this entire State, including our great dairy industry, supplying much of the milk for the cities of New York and Philadelphia, is left without the supervision of a qualified State veterinarian at Trenton.

I cannot refrain, before concluding this address, from making a few personal remarks. The loyal and enthusiastic support that every officer and member of this amalgamated association has given me as your executive officer during the last two years has been such as to strengthen my hands, without which the achievements we recount to-day would have been nothing but poor, miserable failures.

This gavel, the silver service, as well as the resolutions you passed on the loss I sustained in the terrible conflagration on the night of February 9th last, when my offices, veterinary buildings and appointments, pharmacy, library, instruments, and many things that money cannot replace, were destroyed, were kind tokens from you that bespeak more than language can express.

You may be interested in knowing that the original draft of our veterinary law was destroyed in that fire. It was in Senator McKee's office, where he and I had gone over it together the day previous. This must be a good law, for it can truthfully be said that neither fire nor flood could impair or kill it.

Aside from general practice, I see two large, uncultivated, and sadly-neglected fields for the qualified veterinarian. One is that of animal husbandry and industry; the other is that of veterinary sanitary medicine and police. The public is beginning to demand that adequate safeguards be placed around their meat and milk-supply, and I am sure that this Association in its wisdom will not shirk its duty, but on the contrary place the veterinary profession in a position to deal successfully with the important issues that are sure to confront it. Let every veterinarian continue to do his part, be it little or much, and the time is not far distant when the profession will have the satisfaction of having one of its own members as the director of veterinary affairs at Trenton, and the public the benefit of a veterinary service operated upon the basis of modern scientific knowledge and experience, that will add in a large degree, and in a real and substantial manner, to the health and wealth of the people of our beloved State.

VITALITY AND IMMUNITY.

By Carl Schulin, M.D.,
BILLINGS, MONT.

(Continued from page 6.)

Bacteriology is the natural history of the lowest plants on the borderland of the animal kingdom. It is a young but rapidly growing science and needs a Decandolle and a Darwin more than a Linné.

The most important feature of germs is their virulence. Their features are all more or less subject to variations. The virulence is the most variable feature. It must be caused by the production of certain chemical substances, either in the germs themselves or through their influence in the tissues. According as variations occur in the germs or the tissues, the results may be very different. The germs are much influenced by temperature, light, and other causes, and the tissues may at times contain substances which are missing at other times. The presence of other germs often plays an important rôle. This is called mixed infection.

We call a germ pathogenic if it is capable of producing substances in or on our bodies which are injurious to health. The complex of the symptoms produced constitutes a disease. If the same germ invades our bodies again and cannot reproduce the same disease, then we call ourselves immune against that disease. And this immunity is an acquired one. At the same time, we speak of congenital immunity in the case of germs which are injurious to some animals, but cannot do harm to others.

Immunity is known to exist not only against vegetable pathogenic germs, but in like manner against all kinds of animal parasites. They all favor certain animals and avoid others. This is partly caused by the relations between the different animals, which bring some into contact and keep others apart. Those in contact, for instance, dog and sheep, will naturally have some parasites in common. Still, no parasite can live on all animals, and no two kinds of animals which come regularly into contact have all their parasites in common. Individual immunity against almost any kind of parasite occurs frequently as well.

It seems to be the blessing of man that he has not only the greatest variety of animal parasites (according to Leuckart, about fifty kinds; as many as cattle and dogs together), but also the greatest variety of diseases. Man has congenital immunity only against a few diseases of minor importance; for instance, chicken cholera, swine septicæmia, swine plague, etc.; and, to make up for this loss, he has quite a number of diseases against which all animals are immune—*e. g.*, cholera, typhoid fever, lepra, scarlatina, gonorrhœa, and syphilis.

Animal parasites prefer some animals to others, probably for the same reason that plants select their habitat. It is a question of food. Seed reaches everywhere, but it cannot grow on sterile soil. This ought to apply to the pathogenic germs as well, and the animal parasites, too.

The leucocytes act similarly to those low-grade infusoria which are called amœbæ. They stretch out branches and thread-like twigs in all directions, apparently for the purpose of respiration and nutrition. In the presence of certain substances the movements become lively, while other substances have the opposite effect. This has been named positive and negative chemotaxis. Some germs have a positive chemotactic effect on the leucocytes. If capillary tubes containing pure cultures of such bacteria are introduced beneath the skin of animals, the leucocytes penetrate into the tubes. From other cultures the leucocytes keep away.

According to Buchner, it is an albuminous body in the bacteria which attracts the leucocytes. Gluten, casein from wheat, and legumin from peas have a similar effect while starch does not have it. The introduction of such substances into the blood produces a great increase in the number of leucocytes.

Absence of chemotactic force is identical with non-virulence as far as inflammation is concerned. And inflammation is one of the principal symptoms in most diseases concerning which we speak of immunity.

Chemotaxis is in many instances followed by phagocytosis (Metschnikoff)—*i. e.*, the taking up of germs into the bodies of leucocytes. Where more than one kind of germ is present the leucocytes sometimes reject a species which at other times they readily devour. Thus, in diphtheria combined with streptococcus infection, Ruffer found that the leucocytes took up the diphtheria bacilli only and not the cocci. In a mere streptococcus infection —*e. g.*, erysipelas—the leucocytes are not so particular. They devour the cocci, especially at the periphery, where the disease is spreading. In the older areas the cocci are nearly all free.

In some diseases, for instance smallpox and erysipelas, inflammation and fever are the most conspicuous symptoms and constitute nearly the whole disease. In others, for instance, tetanus and rabies, inflammation and fever play no rôles. Nervous symptoms are here in the foreground; other features present themselves in anthrax.

Anthrax is caused by an aërobic bacillus which grows superabundantly in the tissues and the blood. Its main symptom is an acute swelling, which leads not to suppuration, but to gangrene. Another characteristic symptom is the absence of fever. There may be a little fever in the beginning, but the temperature falls soon and becomes, especially in fatal cases, even subnormal. Death occurs under symptoms of irregular respiration and heart action, dilated pupils, diarrhœa, and bloody stools. These are symptoms of septicæmia. Hoffa isolated the poison which produces these symptoms from pure cultures of anthrax bacilli on sterilized meat. It is closely related to kreatin and is apparently not a product of the bacilli but a result of the decomposition of the meat by the germs growing on it.

The anthrax bacilli have negative chemotactic force. They drive the leucocytes away. Pus is formed only in favorably terminating cases when a line of demarcation establishes itself around necrotic parts. The wall of granulations stops the further progress of the bacilli and prevents reabsorption of septic material.

Anthrax bacilli eagerly consume oxygen. Therefore, Boellinger thought death was caused by asphyxia. In fatal cases, however, the oxygenating power of the blood has been found unimpaired (Nencki, in rabbits). Death is doubtless caused by poisons like the one which Hoffa found in meat, and the variations in different cases may depend upon differences in the chemical composition of the tissues on which the bacilli grow.

The anthrax bacillus was the first germ which was convicted of causing a disease. While it was seen as early as 1849 by Pollander, it was recognized as a pathogenic germ only in 1863 by Davaine, and in 1879 Toussaint demonstrated on the same germ for the first time the possibility of producing an artificial immunity against a disease. He made the discovery that animals which he injected with pure cultures of anthrax bacilli after they had been exposed to a higher temperature, were only slightly affected and remained thereafter immune. Pasteur and Koch confirmed this. After the anthrax bacilli, which thrive best at a temperature of 37° C., have been exposed for about a month to a temperature of 42° C., they are apparently unchanged, but no more poisonous. Koch succeeded in preserving such bacilli by continuous cultivation for more than two years.

After having been exposed for about nine days to a temperature of 42° C., the anthrax bacilli are still able to kill guinea-pigs, but no more rabbits. After two weeks more of such exposure to heat they can kill only mice, and later on not even these.

The anthrax bacillus does not produce an anthrax toxin in the same way the diphtheria bacillus produces a diphtheria toxin. Neither has there so far been found in the body an anthrax antitoxin. Still there is an immunity against anthrax. The anthrax bacillus can be so far attenuated that it can no more do any harm to the body, and, on the other side, the body can be fortified to such an extent that the strongest anthrax bacilli can no more injure it.

The acquired, as well as the congenital, immunity against anthrax has a peculiarity which, as far as we know, no other immunity has —it can easily be destroyed. White rats, dogs, fowls, frogs, also the Algerian race of sheep are naturally immune. The immunity of white rats, for instance, can be destroyed by compelling them to turn a wheel for a long time, and thus exhausting them (Roger). Artificial refrigeration does the same to fowls (Pasteur), inanition to pigeons (Canalis and Morpurgo). Curare, chloral, alcohol, etc., have the same effect. The immunity against anthrax which can be produced in man has no practical value. The time of incubation is too short to produce immunity after the infection has taken place.

Of the chemical composition of the diphtheria toxin as well as the antitoxin very little is known. The toxin is a very strong poison. It is a non-albuminous substance. In addition the diphtheria bacillus produces also a toxalbumin. The antitoxin is non-poisonous to man and animals. It is an albuminous substance.

There is some difference of opinion concerning the relation between toxin and antitoxin. Some authors believe, with Buchner, that antitoxin is a chemically changed toxin, while others, with Ehrlich, accept it as an independent product of the animal body. The writer believes the latter correct, for the following reasons:

First, the just mentioned chemical difference between diphtheria toxin and antitoxin. A non-albuminous toxin could not very well change to an albuminous antitoxin.

Second. The quantitative proportion between toxin and antitoxin. This is not, for instance, like that between albumin and peptone during digestion, but it is about as the proportion between a regular dose of pilocarpine and the quantity of saliva secreted under its influence. Knorr found that a horse produced 100,000 times more tetanus antitoxin than toxin was furnished by the tetanus bacilli..

Third. The fact that a widespread opinion to the contrary notwithstanding, antitoxins do not protect exclusively against the toxins after which they are named. Ehrlich found that guinea-pigs can be made immune against the effects of the castor-oil bean and the jequirity bean by feeding them at first with small and then with gradually increasing doses of these beans. These immunities are caused by antitoxins which Ehrlich named antiricin and antiabrin, respectively. Antiabrin annuls the effects of snake venom and diphtheria toxin, as well as those of the jequirity bean; it protects also against ricin, but not against tetanus toxin. Tetanus antitoxin is antagonistic to snake venom, but not to abrin or ricin. Diphtheria antitoxin alone seems to protect against diphtheria toxin exclusively.

Some antitoxins are normal constituents of the blood of certain animals, while they are missing in others. This accounts for the natural immunity of certain animals against some diseases to which others are susceptible.

Antitoxins are used for the purpose of protecting the body by artificial immunization against infection. Providing the time of incubation be long enough, antitoxin may be used successfully even after the infection has taken place. Still, the field of this method is very limited in the great variety of diseases. The most splendid results are obtained with it in diphtheria.

Diphtheria antitoxin is a normal constituent of the blood of the horse. The horse cannot contract diphtheria, but the diphtheria toxin takes some effect on it. When injected hypodermically it causes some local irritation and a little fever. By slowly increasing the doses, the horse becomes more and more accustomed to the toxin, and its blood is charged with enormous quantities of diphtheria antitoxin. The serum of this blood can be used for the prevention and, if applied early enough, for the cure of diphtheria in man. Still, this artificial immunity is not lasting. That which is a normal constituent in the horse is in man a foreign element and will soon disappear from the blood, because it is not reproduced in the body. Infants are immune against diphtheria, and the disappearance of this immunity seems to coincide with the atrophy of the thymus gland.

Immunity, however, is not in every case produced by an antitoxin, as we already have observed in the case of anthrax. Nature, as a rule, does not have only one way of accomplishing a certain purpose.

Rabies has the longest, but the most varying, period of incubation. The average duration is six weeks; it varies, however, between a few days and twelve months. Basing his opinion on the results obtained with attenuated cultures of anthrax bacilli, Pasteur conceived the idea that the outbreak of rabies in a patient who had been bitten by a mad dog could be prevented in a similar way during the long period of incubation.

Unfortunately, all efforts to find the germ of rabies have so far been unsuccessful. Pasteur, however, although he could not isolate it, located it beyond doubt in the salivary glands, the pancreas, and the central nervous system. He also found that its virulence could be attenuated by drying pieces of the spinal cord of the diseased animal in a sterile atmosphere, the degree of attenuation being in proportion to the length of time it had been dry. He first succeeded in immunizing dogs, and later applied his famous treatment of rabies to man. At that time nothing was known of antitoxins, and therefore it is of great interest to compare Pasteur's views concerning rabies with our modern knowledge about an apparently similar disease—tetanus.

Both have in common the features that they originate from the infection of a lacerated wound and terminate fatally under convulsions from an affection of the central nervous system. The tetanus bacillus, however, in contradistinction to the supposed germ of rabies, is one of the best known of germs. It is an absolutely anaërobic bacillus. Outside of the body it leads a saprophytic life, apparently everywhere in the soil, especially where there is manure. It enters the body through lacerated wounds. Its toxin is one of the strongest poisons known. A mouse is killed by 0.00005 mg. This would make the lethal dose for a man about 0.23 mg., more than one hundred times less than that of strychnine.

The nature of the tetanus toxin is not fully understood. It is soluble in water, but does not diffuse through membrane. When taken into the mouth, it remains unabsorbed and is eliminated by the rectum (Ransom). In solution, as well as in a dry condition, it has an inclination to lose its poisonous properties. Acids and alkalies injure it rapidly; bile does the same. It is not an alkaloid; it is apparently a toxalbumin.

Congenital immunity against tetanus exists in amphibians. Birds are only slightly susceptible, most of them scarcely at all. Dogs are susceptible, but not so much as men, horses, mice, etc. Behring and Kitasato succeeded in producing artificial immunity by gradual introduction of toxin into the blood of different animals. They also obtained a well-characterized antitoxin. It was later on isolated from the blood of immunized dogs and prepared in a solid form by Tizzoni and Cattani.

An extremely interesting observation was made by Wassermann. He found that fresh guinea-pig brain or spinal cord rubbed up in a mortar with a normal salt solution and injected into animals produced immunity against tetanus lasting for twenty-four hours. Another equally interesting observation was made by Montesana and Montesson. They found a pure culture of attenuated tetanus bacilli in the cerebro-spinal fluid of a man who died from paralytic dementia without having had any symptoms of tetanus.

Two things are not kept sufficiently apart by writers on bacteriology, namely, the chemotactic force and the poisonous qualities of germs. The former is a physical phenomenon, while the latter have a chemical nature.

Manifold are the efforts to give a satisfactory explanation and definition of inflammation. The reader is familiar with the old neuropathic theory, with the theory of exsudation of the Vienna School; with Virchow's definition of inflammation as a phenomenon of irritation with the character of danger. A new era was inaugurated by Cohnheim's discovery of the active emigration of the leucocytes through the stomata between the endothelia. When bacteriology was developed, germs were charged with being the essential cause of inflammation. This, however, was soon found to be incorrect. Inflammation can be produced, without the presence of germs, by nitrate of silver, oil of turpentine, strong liquor of ammonia, and other substances, and the germs do not lose their power of producing inflammation after they have been killed by heat. Chemotactic force is not an active function of germs. It is a physical phenomenon, an electromagnetic attraction which certain substances exert on the leucocytes. All "activity" is on the part of the latter, and is, therefore, directly a function of the body. This function requires labor and material, such as only can be furnished by a healthy body. High-grade inflammation followed by the production of pus bonum et laudabile cannot take place in a deteriorated and vitiated system.

Concerning labor, the extremely interesting discovery has been made by Finsen that it is under the influence of the chemical rays of light. Finsen's assistant, Dr. Waldemar Vie, in an article prepared by request of Finsen and published in the *International Clinics*, vol. iii., eleventh series, 1901, describes the marvelous results obtained by him with his methods of phototherapy. Finsen found that in smallpox the suppuration in the vesicles can be prevented by excluding all but red rays of light from the sick room. In non-vaccinated people the "red-room treatment" has the same effect as vaccination when they contract smallpox.

Besides this, Finsen found that chronic and indolent inflammations can be cured with concentrated light, from which the heat rays have been excluded. The actinic rays produce not only inflammation, but, if applied in sufficient strength, they have a powerful germicidal action.

It appears from Finsen's discovery that the chemotactic force of germs is paralyzed when the actinic rays of light are excluded. Chemotaxis cannot take place in chemical darkness. On the other side, those incapsulated nodules with a slimy or cheesy centre, in which bacilli lead a saprophytic life, can be reached and disinfected with actinic rays of light.

Concerning the material of the inflammatory products, the discovery has recently been made, that if produced by a healthy body, they contain large quantities of the above-mentioned substance, from which the tissues obtain their antiseptic power.

Physicians of former ages, with their limited equipment for scientific research, assumed the existence of two things which play important rôles in pathology. One was the "materia peccans" of zymotic diseases and dyscrasia; the other was the vital force or "vitality" with which the system resists the materia peccans. The actual existence of the materia peccans was demonstrated by Pasteur and his school in the bacteria, and vitality was recognized by Brown-Séquard as a chemical substance produced by inner secretion in the body. In the last days of his life he made the discovery that the testicles contain this substance in larger quantities than any other part, and conceived the genial idea that senility might be treated successfully with injections of testicular extract. The name of the substance in question is spermin.

It is the great merit of Alexander Poehl, of St. Petersburg, Russia, to have investigated the spermin thoroughly, with the most gratifying results. The writer never in his life felt more pleased with a new medical work than when he read Poehl's "Spermin-theorie."

Spermin has its name from sperma, in which it was first discovered by Boettcher, in 1865. It has, however, nothing to do with fecundation. It does not produce or propagate life; it preserves it. It is the general antitoxin which the body produces indiscriminately against invading germs.

Spermin ($C_5H_{14}N_2$) is a strong base. With acids it forms salts which readily crystallize. Poehl uses for medicinal purposes hydrochlorate of spermin. It is readily soluble. Phosphate is under certain conditions insoluble, under others readily soluble. Such conditions are: the chemical reactions of the solvent. Perfect neutrality causes the phosphate of spermin to crystallize while an excess of acid, and especially of alkalinity, helps it to stay in solution. The presence or absence of certain other substances play a rôle. The so-called asthma crystals of Charcot and Leyden are insoluble phosphate of spermin and are identical with the crystals which Boettcher first obtained from sperma.

The best organs to obtain spermin from are the testicles of colts and stallions. Spermin, however, does not exist in these organs alone, but also in the ovaries, all glands, and especially in the hæmopoietic organs, spleen, bone-marrow, etc., and, besides, it is present in large quantities in healthy pus, in pus bonum et laudabile, but not in pus malignum!

Spermin has a catalytic force, that of transferring oxygen. Oxygen in statu nascendi is known to be a very strong antiseptic and thereupon is based the germicide force of the tissues and the blood.

Poehl established the following points: First, the power of promoting oxidation by the blood can be increased or impaired by the addition of certain substances. Spermin is one, by the presence of which this power is increased.

Second. By a lowering of the alkalinity of the blood, its power of promoting oxidation is impaired, and by the addition of spermin it is restored.

Third. Carbon oxide, chloroform, and other substances have a lowering influence in this regard, and are counteracted by spermin. Carbonate of soda has an accelerating influence on processes of oxidation, but it does not act so strongly as spermin. Chloride of sodium or ammonium, urea, allantoin, and leucin are indifferent. Urate of soda, certain leucomaines, and bile have a decreasing effect and are counteracted by spermin.

Fourth. By the injection of urine into the blood the power of oxidation is greatly diminished, especially by the urine of anæmic people, of people who have neoplasma ventriculi, spondylitis, ischias, and of those who are under the influence of shock. This can also be counteracted by the introduction of spermin into the blood.

Fifth. The *modus operandi* of spermin has a catalytic character. It is itself not changed by its work. It can, however, work only as long as it is in an easily soluble condition, as in the case of hydrochlorate. Phosphate of spermin, which is difficult of solution, is inert.

Poehl, then, calls the attention of his readers to the so-called "textural respiration" and the products of retrogressive metamorphosis in the tissues. Of the latter, especially those which Gautier placed together as "leucomaines," play an important rôle in pathology.

The albuminous substances are mixtures of chemical compounds which resemble one another. They may be homologous. So far we are not enabled to separate these substances sharply from one another. Attempts have been made to gain an insight into their chemical constitution from the products of their decomposition in the metabolism. Here we must never forget that the "giant molecules" with which we have to deal are not satisfied with one chemical action. At one end of their bodies they may be an acid, and at the same time at another end a base; at a third end may be an aldehyde, etc., and they always play several rôles simultaneously.

The reader has observed that even spermin, which is a comparatively plain chemical compound, is at the same time a base and an enzyme.

A good many processes of life go on without disintegration of the albuminous molecule. The power is apparently furnished by means of some physical agency, especially the actinic rays of light. A good many other processes, however, involve the decay of the molecule and lead to the formation of a great number of products of splitting. Two chemical actions stand here in the front rank, that of oxidation and that of hydration of parts of the giant molecule.

The first changes from retrogressive metamorphosis are so slight that they are hardly recognizable. Still, they are sometimes sufficient to impart the strongest toxic qualities. Therefore, these albumins have been named toxalbumins in contradistinction to the original ones. Poehl thinks he found in polarized light the means of detecting the very first beginning of these changes; in a similar way as it is known from grape sugar.

In the further stages of the retrogressive metamorphosis, substances form which are chemically different from the original albumins. Of these substances, those which contain nitrogen, the leucomaines, especially deserve our attention. They have the feature in common that they can easily be oxidized and changed to other substances which are more readily soluble and diffuse more easily. Those leucomaines which are poisonous lose their toxicity by oxidation.

Oxidation thus performs the important function of changing products of imperfect retrogressive metamorphosis in such a way that they can more easily be eliminated and lose their objectionable qualities. To do harm, these products need not absolutely be poisonous. Uric acid, for instance, is not a poison, but it causes trouble mechanically by its accumulation in the tissues. Uric acid, which is barely soluble, can, by oxidation, be changed to urea, which is readily soluble, and is, therefore, easily eliminated.

The accumulation of such substances in the blood and tissues is the essential feature of those diseases which Bouchard put together under the head of auto-intoxications.

Albumin contains nitrogen in two forms. Part of it is united with the oxygen-containing radicals CO and CO–CO. These radicals give the molecules the feature of amido compounds. Here belong urea and the ureides. The balance of the nitrogen is united with hydrocarbon radicals. They impart to the nitrogen its basic qualities. The narrow limits of this paper do not permit of the enormous number of substances which are thus produced being enumerated. Suffice it to state, however, there are four groups of them: the ureides, those of the xanthin group, those of the kreatin group, and the neurin bases.

Of the ureides, the most important is uric acid. Of other members of this group, only two may be mentioned, allantoin and alloxan, which need no further introduction to the reader. All ureides can easily be changed to urea, directly or indirectly by oxidation or hydration, respectively. No ureide is poisonous.

The members of the xanthin group all have more or less the features of alkaloids and are at the same time bases and weak acids. According to Kossel, they are all the splitting products of nuclein and nucleinic acid, respectively. From the nucleinic acid of yeast Kossel gained guanin and adenin; from that of the testicles adenin, xanthin and sarcin; from that of the thymus gland adenin.

The xanthin compounds are found in all glands. In the opinion of Kossel, they originate from the nucleinic acid in the nuclei of the cells in the glands. By far the greatest part of them is by oxidation changed to uric acid. A very small amount is eliminated unchanged by the kidneys. Adenin ($C_5H_5N_5$) has been found in all glands, but never in the muscles. Adenin, by oxidation, is changed to alloxan. It is not present in normal urine, but has been found in the urine of people with leukæmia, also of children with nephritis.

Xanthin and sarcin, which is also called hypoxanthin, are found in all tissues which are rich in nucleinic acid. They are also found in muscles. Traces of both are normal constituents of the urine, and they are found in increased quantities in the urine of people with leukæmia and nervous diseases. Both are toxic; sarcin more than xanthin. They produce muscle spasm and later paralysis of the spinal cord. They also irritate the kidneys. Guanin is not toxic. Like xanthin and sarcin, it can, by oxidation, be changed to uric acid.

The members of the kreatin group, kreatin, kreatinin, etc., are all found in large quantities in the muscles. By oxidation through some intermediary stages, they produce urea—not uric acid! They are toxic; they produce convulsions. In very small quantities they are normal constituents of the urine. These quantities are much increased in disease. While the members of the xanthin group are splitting-products of the nucleo-albumin, those of the kreatin group originate in the protoplasma, which accounts for their prevalence in the muscles. The muscles perform their functions pre-eminently with protoplasma, while in other parts, for instance, the glands and the hæmopoietic organs, metabolism of the nuclei prevails.

(To be continued.)

HEMORRHAGIC SEPTICÆMIA.

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Provisional Report on Bacteriological Examination of Hemorrhagic Septicæmia at State Experiment Station, St. Anthony's Park, June 9, 1902.

(Continued from page 29.)

Specimens were collected from cows Nos. 1, 2, and 3 on June 9th, and from cow No. 4 on June 12th, at autopsies conducted by Drs. Reynolds and Brimhall. Bacillus bovisepticus (hemorrhagic septicæmia) was obtained in pure culture from the liver and spleen of cow No. 4, and was found present also in the lung and meninges of cow No. 1, and in the pharyngeal gland and meninges of cow No. 2, though in these latter two animals the bacillus was mixed with other organisms, such as colon bacillus. This was probably due to the fact that the autopsies were not made until several hours after death.

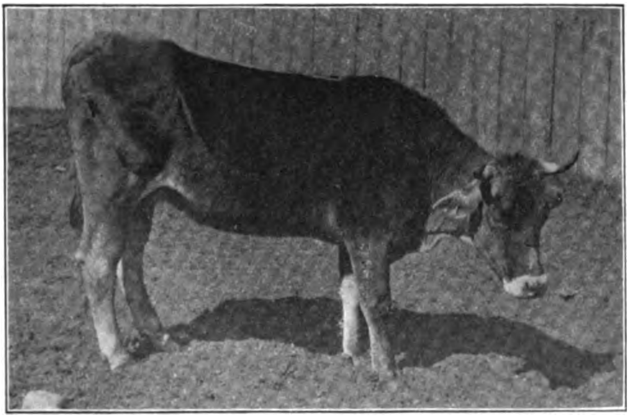
With the cultures obtained from the meninges of cow No. 1, rabbit No. 569 was inoculated intravenously June 13th and died on June 14th—*i. e.*, in less than twenty-four hours. From the rabbit the bacillus was obtained in pure culture from the heart's blood.

From cow No. 3 this bacillus was not isolated, probably owing to the very great infection with other micro-organisms which had developed after the death of the cow. Further rabbit inoculations will be made. In the meantime, from three of the four sources the micro-organism has been obtained, and from one source, cow No. 1, the organism has been shown to be virulent. The strains of bacilli from the other two cows have been inoculated into animals, but as yet no results have been obtained.

Yours truly,
F. F. WESBROOK.

University Farm Case Notes. Iris. June 8th, 3 to 5 P.M., she was slightly stupid, in standing position, apparently strong and breathing easily. This cow drank naturally and did not show anything unusual except a slight listlessness. She died at 6.15 P.M. Iris' death was very unexpected until within a few minutes before it occurred. (Fig. 7.)

FIG. 7.



Iris. University Farm outbreak. An apparently easy attitude, slightly stupid. A moment before she was drinking and switching flies unconcernedly. The photograph shows her condition at 5 P.M.; at 6.15 P.M. she was dead.

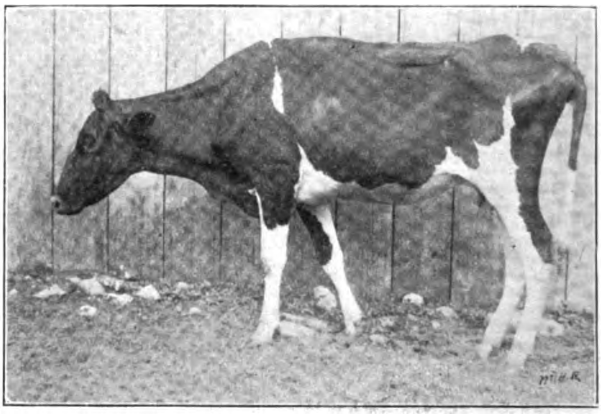
Vye. June 8th, 11 A.M., quiet, apparently comfortable, could walk fairly well; not supposed to be in any serious danger. This cow had a slight convulsion at 9 A.M.; 1 to 3 P.M. quiet and lying in a comfortable position.

June 9th the cow was found dead early in the morning in a back stable, having forced her way through an intervening door, which had been closed the night before. She had evidently shown great activity before death, although she was very quiet the evening before and was not considered to be in immediate danger.

Lou. June 8th, 3 to 5 P.M., standing most of the time, walked fairly well, but seemed very weak. Died about 6.15 P.M. (See Fig. 8.)

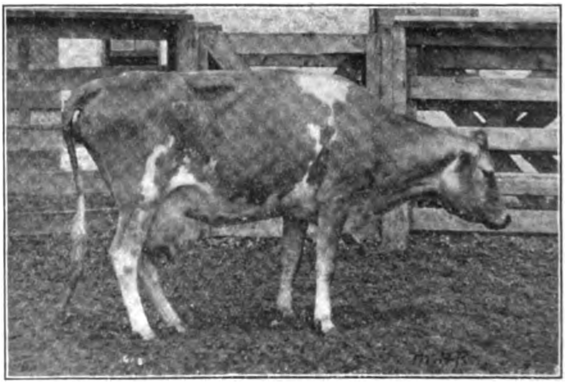
Sweet Clover. June 8th, died about 9 P.M., after an hour or more of intense nervous and physical activity. She was champing her jaws spasmodically and had convulsions of the face and neck muscles. The earlier history of this case is unknown. This heifer was taken sick suddenly in a pasture to which the other cases had not had access and was the only case to develop in this pasture.

FIG. 8.



Lou. University Farm outbreak, meningeal type; case in first stage, cow stupid.

FIG. 9.



Dell. University Farm outbreak, meningeal type; case in first stage, animal stupid.

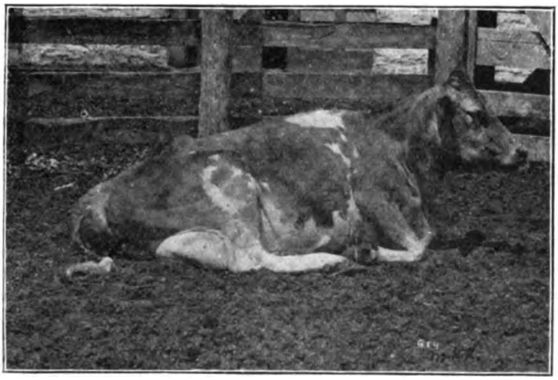
Alzanka. June 8th, quiet at 10 to 12 A.M. Neck around to the side, as in parturient paresis. Could walk, but was down most of the time. 3 to 5 P.M., down all the time; neck in the flank; quiet.

9 P.M., down with the neck in the right flank most of the time; quiet, stupid, with stertorous breathing.

June 9th, 9 A.M., about the same as the previous night; 11 A.M., temperature 100.8°; 2.30 P.M., 101.8°; 6.45 P.M., 102.8°; 9.40 P.M., 101.8°. June 10th, 7 A.M., 100.8°. This cow died at 10 P.M. Little apparent change in condition until near the end.

Dell. June 8th, 11 A.M., quiet, down most of the time. At 3 P.M. lying in the yard, stupid, neck bent to one side. She was quiet, although the appearance of her eyes and the condition of the cervical and facial muscles suggested a tension of the nervous system. Breathing at this time was stertorous; 10 P.M., temperature 101.5°; down, quiet, but showing the usual symptoms in the face and neck; loss of skin sensation, etc.

FIG. 10.



Dell. University Farm outbreak. The same animal as Fig. 9. A slightly later stage of the disease.

June 9th, 9 A.M., apparently little change since last night; 2.30 P.M., about the same; 6.45 P.M., temperature 101.6°; 9.50 P.M., 103.4°. This cow died at about 4 A.M., June 10th.

Countess. June 8th, 11 A.M., respiration stertorous, recumbent most of the time, but could walk. 2.30 P.M., pupil of the right eye was contracted, the left dilated; 3.05 P.M., this cow was down most of the time, respiration stertorous; could walk, but the gait was quite irregular.

June 9th, 9 A.M., cow had died during the night and was found out of doors, having in some way forced her way through or under a very heavy sliding door. Evidently there had been intense activity before death.

Euroma. This was a Jersey cow, giving normally at this time about fourteen pounds of milk, testing 5 to 6 per cent. butter fat.

She gave on the evening of June 6th, 5.1 pounds of milk, testing 6.2 per cent.; on the morning of the 7th, 2.1 pounds of milk, 5.2 per cent. butter fat.

On the morning of the 7th the head was carried to the left, the left ear was more upright than the other and held back in a peculiar position, and the animal seemed stupid.

June 8th, 9 P.M., the patient was standing grating her teeth and showing very marked spasms of the cervical muscles. The head was now turned around to the right and a portion of the right ear was cold. She was not seen during the interval, but supposed to be quiet and easy from what was learned of the attendant. At 9.05 P.M. this cow was found back of a spray pump in the runway, very stupid, weak, and with poor circulation. She was in a standing position and grating her teeth. Spasms of the cervical muscles were marked. This cow was apparently in a very serious condition. At 10 P.M. there was great nervous excitement, the patient tearing around in a large room with short intervals of comparative quiet. Chewing motion, discharge of frothy saliva, and convulsions of the neck and face muscles were continuous; 10 P.M., temperature 104°; 10.30 P.M., 105°; 11.20 P.M., 107.6°; died at 11.40 P.M. Note the very rapid rise of temperature.

Trudie Lee. This cow gave no milk on the evening of June 10th. June 11th, 10 A.M., temperature 102°; 1 P.M., temperature 101.8°.

This cow was apparently almost normal on June 11th, but showed the usual peculiar expression of eyes and head. She was grating the teeth slightly, salivation was increased, and skin sensation good, at least during the forenoon; patient slightly dull.

June 11th, 1 P.M., down; when made to get up she stretched and seemed to feel first-rate. The nose was moist; 6 P.M., temperature 101.6°; neck at right side, hair rough, feet raised several times in a crampy way, nose moist; 9 P.M., temperature 102.6°, wild expression in the eyes, and nose dry. She died during the night.

Examination Post-mortem. Only this one autopsy record of the University Farm cases will be given here. The findings in all cases were very similar, and Trudie Lee may be taken as a type.

Trudie Lee, a Jersey cow, in good condition, died early in the morning of June 12th. The carcass was in fairly good condition. There were hemorrhages in several places on superficial parts, under scapulæ, etc. There were very marked hemorrhages involving the meninges of the medulla, but scarcely showing at all on the brain surface or in its substance. Multiple hemorrhages were thickly scattered over the omentum and mesentery, and there were several on the surface of the liver. The heart showed many small hemorrhages on the surface, the right auricle being very markedly hemorrhagic. On the costal pleura there were numerous hemorrhages of varying sizes. The lungs were deeply congested in places, especially in the region of the internal faces.

Lesions were all of marked hemorrhagic character. There were two marked hemorrhages between the peritoneal and muscular coats of the uterus, which contained a normal five or six months' fœtus.

Comments on Case Notes. A survey of the foregoing case notes brings to light several interesting points. In the first place, it will be noted that the temperatures were normal or subnormal rather than high, until a very short time before death, when the temperature rose very rapidly, notably in the case of Euroma. The evidence on this point is not altogether satisfactory, for in so many of the cases circumstances were such that temperatures could not be well taken during the last hour or so. In the Caffrey cases, where it was possible to follow the cases entirely through its course from the onset until the fatal termination, the temperatures were normal or subnormal throughout.

In an outbreak which occurred among cattle at the University Experiment Farm the disturbances of the nervous system were particularly marked; so much so that the diagnosis based on both ante-mortem and post-mortem symptoms was unanimously considered to be cerebro-spinal meningitis.

Several of these cases at certain stages very closely resembled typical cases of parturient paresis. (See letter from Dr. Hela, under "Caffrey Outbreak.") It should perhaps be noted that we had one cow taken sick with all the clinical symptoms of this latter disease, the symptoms appearing about thirty-six hours after parturition. (See "A Supposed Milk-fever Case.") The outbreak previously described as appearing among the dairy cattle belonging to the University Experiment Farm appeared on June 8th, or about eleven days after this supposed milk-fever case. No examination post-mortem was made of the latter, but in view of the fact that several of the cases which appeared in the general outbreak among our cattle very closely resembled milk fever in all points except in the history of recent parturition, grave doubt has arisen in the mind of the writer whether the supposed milk-fever case was not a cerebro-spinal type of hemorrhagic septicæmia instead of parturient paresis. The writer can well understand that a suspicion as to the accuracy of the diagnosis in an apparently typical case of parturient paresis may appear somewhat peculiar, to say the least, but to those of us who saw the cases among our University Farm cattle it does not seem peculiar at all. There does not appear any reason why this peculiar type of hemorrhagic septicæmia could not appear thirty-six hours after parturition as well as at any other period. If we consider the sudden checking of milk flow, the constipation, the posterior paralysis, the lack of skin sensation, the recumbent position, with the head in the flank much of the time, the reason for doubting an apparently clear diagnosis may be easily understood.

A peculiar fact which appeared in connection with our University Farm cases was noticed by the attendants, and everyone who saw the case, viz., that the animals nearly all died in what they called the "inverse ratio"—*i. e.*, the cases which were apparently most seriously sick in their histories were the cases which lived the longest, whereas the apparently milder cases died very quickly and very unexpectedly. Those cases which were apparently most seriously sick were the ones which lived until the last ones of the outbreak. The Vye cow is an instance in point. If the brief convulsions on the morning of June 8th had not been seen, this cow would ordinarily not have been considered sick at all beyond a very slight diarrhœa.

Iris was standing in the yard drinking, switching flies, showing nothing whatever apparently wrong with her except slight listlessness, as seen in the accompanying photograph, and yet she died very suddenly and unexpectedly, without developing serious symptoms until a very short time before death.

In none of the cases witnessed by the writer has there been a rise of temperature, not any tenderness on pressure over the spinal column more than elsewhere over the body, but quite a number have shown a hypersensitive condition of the skin in general. None of the cases seen by the writer presented unnatural heat at the base of the horns, or throat paralysis. It will be seen that although the State Farm outbreak was unquestionably a cerebro-spinal meningitis, as proven by ante-mortem and post-mortem symptoms, yet it differed in very many particulars from cerebro-spinal meningitis as it appears in the human family.

A Case of Ovine Hemorrhagic Septicæmia. A show sheep in fine condition, ten months old, which arrived from Canada about the middle of February, was noticed sick February 17th and died on the 18th. This animal was examined on the 17th at about 4 P.M. The patient showed peculiar breathing, there being two or three short, moderately full respirations, and then a considerable interval. Respirations were not very rapid, and quite unlike an ordinary pneumonia. Neither nasal discharge nor cough was noticed; temperature and pulse were not taken. This was supposed to be a case of common catarrh and not thought serious. The animal died very unexpectedly.

Autopsy. Several bright, sharply-defined, hemorrhagic areas were found on the inner surface of the skin after removing an excessive amount of fat. There were no hemorrhages on the superficial muscles. The small intestines were evenly and generally congested, but this was comparatively slight. No hemorrhage upon any portion of the alimentary tract. The lungs were as if they had been taken from a hog during an outbreak of hog cholera and swine-plague, and were typical of the latter disease. The collapsed areas amounted to probably one-third of the entire lung substance. The heart showed extensive hemorrhagic infiltrations, especially the auricles. Report from Dr. Wesbrook, Director of the Bacteriological Laboratory of the State Board of Health, was to the effect that pure cultures of bacillus bovisepticus were recovered.

Supposed Milk-fever Case. A Jersey cow, of high dairy type, belonging to the University Experimental Farm, calved May 28. She was noticed sick on May 29th, and when seen by the writer had lost voluntary control of the limbs; skin sensation was poor over most of the body surface. She was rather quiet, with the head in the flank, and the usual retention of feces and urine. Iodide of potassium, ten grammes, was dissolved in a quart of warm water, at 10.30 A.M., May 29th. One-fourth of this was injected into each gland. This treatment apparently had very little effect and the dose was repeated at 9 A.M., May 30th. This second dose was practically without effect, and the cow died some time during the same afternoon. We did not expect the cow to die at this time, and she was not seen during the last few hours. In view of the symptoms which were seen in one general outbreak of hemorrhagic septicæmia where several cases very closely simulated milk fever, the suggestion may not appear unreasonable that this case was either not a case of milk fever, or else, if you please, a case of milk fever caused by the same germ which was apparently responsible for the development of the other cases, which appeared later. (See University Farm Outbreak.)

(To be continued.)

PERSISTENCY OF THE URACHUS.[1]

By S. H. Swain, V.S.,
DECATUR, ILL.

The urachus is a narrow canal or duct extending from the urinary bladder through the umbilicus to the allantoid sac, where the urinary secretions are discharged and retained until the termination of gestation.

The indications of persistency of the urachus are shown by an escape of urine at the umbilicus shortly after birth. At the termination of gestation nature has intended that this canal of escape for the urine through the urachus should be completely occluded. The escape of urine should then be changed to the urethra; but it sometimes happens that nature has not quite completed her work, and the urine continues after birth to escape through the urachus or through both the urachus and urethral canal, in which case, if immediate and proper attention is not given the case, the escape of urine through the urachus at the navel will result in omphalitis, and is usually followed by septic infection, arthritis, and death.

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[1] Read before the Illinois Veterinary Medical and Surgical Association, Jan. 14 and 15, 1903.

The equine family seems much more subject to this abnormality than the bovine or other domestic animals, and the draught breeds of horses more subject than the finer breeds; the male foal more subject to this persistency than the female.

Treatment. The surgeon should first ascertain whether or not the urethral canal is pervious. This may be definitely ascertained by patiently watching the young creature for a short time until an effort is made to urinate, when, if it is seen that no urine is passed by the urethral outlet, the surgeon should at once endeavor to pass a suitable catheter. This being satisfactorily accomplished, or if the above observation should satisfy the surgeon that the urine is passed through the normal outlet as well as through the urachus, then he should proceed to treat the abnormality, first by cleansing the umbilicus and also the internal surface of the urachus. This may be accomplished by injections carefully made into the urachus by means of a suitable syringe of antiseptic and astringent solution until the surgeon is satisfied that the parts are thoroughly cleansed. Probably one of the best preparations for this purpose is composed of a 1 per cent. solution of formalin, with thirty grains of powdered alum added to each ounce of the solution. This should be repeatedly injected into the urachus until its cavity is thoroughly cleansed. Then the surgeon should proceed to close the urachus, and this may be accomplished by ligature if the urachus has been severed an inch or more external to the navel; but if separation of the urachus has taken place very near or within the umbilicus I would much prefer local astringent and antiseptic remedies to either ligatures or sutures; and for this local treatment I would advise the following, which has proven very satisfactory in my practice: iodoform, one ounce; powdered alum, one ounce; boric acid, four ounces; mixed and applied morning, noon, and night until the urachus is closed and the umbilical wound healed. This antiseptic treatment should be applied, even if closure of the urachus has been effected by ligature; and if the patient is exhibiting symptoms of septic infection an effort should at once be made to combat this trouble, and would advise the internal administration of the following: acid carbolic, one drachm; glycerin, seven drachms; water, eleven ounces. Mix and give one ounce in eight ounces of water every four hours during the day as long as required; and as a local application to the inflamed and swollen joints, two ounces of compound solution of iodine and iodide of potassium to fourteen ounces of water. This should be freely applied three times daily as long as is necessary.

THE FOOT OF THE HORSE.[1]

By L. L. Conkey, D.V.S.,
GRAND RAPIDS, MICH.

The subject which I have chosen for presentation to you at this meeting is by no means a new one, yet we feel that there are many people to-day, raising, breaking, and driving horses that know but little of the true functions of the *horse's foot*, other than it is an organ of locomotion.

Without a doubt, more horses are retired from work annually on account of their feet going wrong than from all other causes combined. This is due to three primary causes:

1. From the lack of a proper knowledge and understanding of the anatomical and physiological functions of the foot on the part of the breeder.
2. Early and indiscriminate shoeing.
3. The perversion of nature, as well as a lack of ability and understanding on the part of the horseshoer who does the work.

To correct those errors, we must begin with the first great cause, which we say is the lack of a knowledge and understanding of the anatomical and physiological functions of the foot, the remedy for which is *education*, and to educate the public along these special lines we must place the subject before them in plain, comprehensive language, avoiding technical terms as much as is possible; therefore we have endeavored to use the most common language at our command in preparing this paper.

The foot of the colt at birth is largest at the coronary band, junction of the hoof and hair, tapering downward in sort of a cone, terminating in a soft cartilage, that it may not injure the maternal organ, before or during birth. This cartilaginous portion soon wears off, leaving the hoof at first cylindrical, which now gradually changes in form for some weeks, when it assumes the shape so characteristic of the type. The lower border of the wall of the hoof is naturally larger than is the upper; at the lower part of the heels the wall is turned in forming the bars, each bar joining its fellow near the centre of the sole at the point of the frog, leaving a triangular space in the back part of the sole in which is lodged the non-sensitive frog. The sole is situated in the lower border of the wall, in an arched position, so that on hard, level surfaces it takes no bearing.

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[1] Read before the meeting of the Wolverine Veterinary Medical Association, December, 1902.

The wall has a glossy covering, called the periople; this covering maintains the whole wall at a uniform degree of softness and toughness, so essential to the elasticity and life of the hoof.

On each projection of the sole which is embraced between the bars and wall of the hoof, is the well-known seat of corns; the name *corn*, however, is a misnomer, as the dark, ecchymotic spots found at the point mentioned is the result of a bruise or undue pressure, and is really the external manifestation of an internal injury, having no similarity to the human corn.

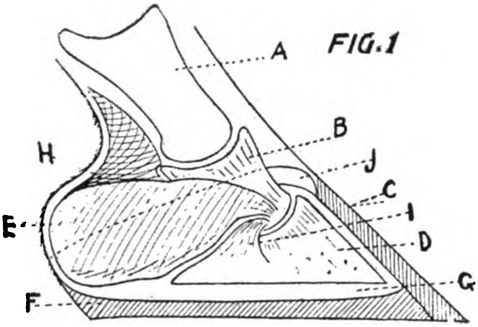
The sole is of uniform thickness, except at its outer border, where it is slightly thickened, forming a firmer attachment with the wall. The frog is a triangular mass of soft and comparatively indestructible fibre, with its apex pointing forward, the fibres doubling inward and upward, form a fissure below and a wedge pointing up between the bulbs of the heels above; thus, we have the non-sensitive structure of the horse's foot. The sensitive structure of the foot embraces the pedal, navicular, and small pastern bones; the extensor and flexor tendons; the inferior or lower sesamoid ligaments, the lateral cartilages, the sensitive sole, sensitive frog, elastic frog-pad or cushion, arteries, veins, and nerves.

By observing the accompanying pen sketches, which are the handiwork of the author, it will be seen that the pedal bone occupies the front part of the foot; and it is covered with a series of soft structure, terminating in the podophyllous membrane, a leaf-like arrangement, dove-tailed into a like arrangement on the inner side of the wall of the hoof. There are about 500 of these leaves, extending from the coronary band down the length of the hoof; they are non-elastic or unyielding.

The os pedis, or pedal bone, is situated in the front part of the hoof, extending about two-thirds of the way back (as shown in drawing, Fig. 1); the remainder of the foot is composed of soft structures; the lateral cartilages, which form the base or bulbs of the heels, are covered on their lower outer surface with podophyllous membrane, giving a firm attachment to the wall. These lateral cartilages are bound together by strong ligaments, to prevent undue spreading of the heels as the great weight of the animal falls suddenly upon them, as in jumping or running.

These ligaments form a network between the cartilages, the meshes of which are filled with elastic material; combining, they form the elastic *frog-pad* (see Fig. 3), and also give form and shape to the bulbs of the heels. Thus the elastic frog-pad is found between the cartilages behind the pedal bone, above the frog and below the pastern bones, so that pressure, when the frog rests upon the ground, compresses the frog-pad, causing it to expand latterly—that is, from side to side—to the full extent of the ligaments; this movement is called *expansion*.

FIG. 1

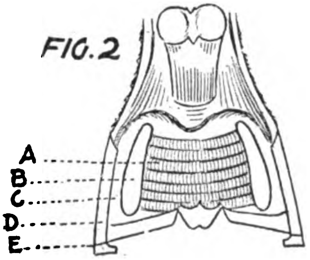


Side view of foot with half of the wall and membrane removed. A. Large pastern bone. B. Small pastern bone. C. Wall of the hoof. D. Pedal bone. E. Lateral cartilage. F. Sole. G. Sensitive sole. H. Frog-pad between heels. I. Lateral ligaments. J. Coronary band.

Now, as the foot leaves the ground the frog descends, while the pastern bones raise, allowing the frog-pad to expand from above downward, and contract from side to side; this action is called *contraction*. Therefore, it will be seen that in the natural foot the frog taking a ground bearing, we have expansion and contraction of the hoof at each and every step the animal takes.

Now, let us go a little deeper into the physiological functions of the horse's foot. We have stated, and have a hoof, too, for inspection, that the sole of the horse's foot is *arched*, or concaved on its ground surface, so that on level surfaces it takes no bearing; we also say that we have expansion of the heels at each and every step. The sole being round and concave on its under side, it will surely be more or less *cone*-shaped on its upper side; when you increase the circumference of a cone, just in that proportion do you diminish its concavity. Is this not true? In other words, the expansion and contraction at the base of the horse's hoof produces the same (although limited) action as that produced upon the diaphragm by the expansion and contraction of the muscles of the chest; hence the first action of the sole is to recede from the foot in a degree proportionate to the expansion at the heel, forming a vacuum which is immediately filled with blood; as the heel always—in a healthy condition—touches the ground first at any pace, as has been demonstrated by instantaneous photography, so always does this action take place; as the animal body is carried forward, the foot becomes weighted, the blood is forced into the upper veins from whence it came; the frog recedes and contraction follows.

This is nature's pneumatic action, not witnessed by us in any other animal, and we claim that this action is essential to the life and well-being of the horse's foot, and can be maintained only through natural conditions—*frog pressure.* (See Fig. 3.)



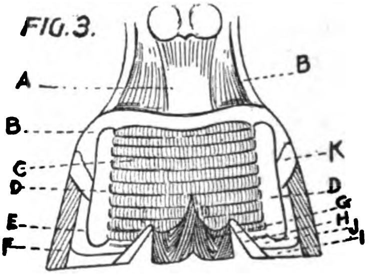


FIG. 2.—Back of the foot, with bulbs of the heel removed by cross-section at the middle of the cartilages, showing the changes that take place from raising the frog from the ground by overgrown hoof, or by shoeing. A. Elastic frog-pad. B. Lateral cartilages. C. Podophyllous membrane. D. Hoof or wall. E. Web of shoe.

FIG. 3.—Back of natural foot, with bulbs of heel removed by cross-section. A. Large pastern bone. B. The skin. C. Elastic frog-pad. D. Lateral cartilage. E. Podophyllous membrane or sensitive laminæ. F. The wall. G. The frog. H. The bars. I. The sole. J. Sensitive sole. K. The coronary cushion.

If you please, gentlemen, we will now go a little farther, and inquire into the changes brought about by allowing the hoof at the heels to become overgrown, raising the frog from off the ground. We have said that anatomy shows the lateral cartilages to be tied together with strong ligaments, the office of which is to prevent undue spreading of the hoof at the heels, as the frog is forced up between them. Now, then, we say the hoof at the heels has been allowed to become so overgrown that the frog no longer has a bearing. What is the result? Simply this, the ligaments that bind the cartilages together are converted into a sling or swing, in which the pastern bones are hung, and when the pastern bones are weighted the frog descends; the frog-pad is now a cushion in a swing, which also descends, drawing the cartilages together at every step taken. (See Fig. 2.)

Completely reversing the laws of nature, and what is the result? A stilty gait. Can you see any difference between the action of this overgrown hoof which raises the frog from off the ground and the shoe with long calkings? There is absolutely no difference. No man on earth can shoe a horse using a calked shoe, except that he injures the foot more or less.

This reversal of the natural functions of the foot accounts for the condition found in the hoofs of nearly all old horses, viz.: long, deep, narrow heels, a hard, dry, wasted frog and contracted feet.

The foot of the suckling colt, but a few weeks old, requires careful attention; those having their care, should at frequent intervals pick up the feet, examine the bars, frog and general condition of the foot. Should one side be found higher than the other, dress it down; if both heels are long and the frog high off the ground, dress them down to allow the frog a ground bearing. Should the toe become overgrown, it, too, must be reduced. This is the age of the animal when we would recommend *shaping the foot to the eye.* If the heels are allowed to become overgrown, the frog thrown into disuse, it will surely dry up and waste away; contraction, thrush and, goodness only knows what else will follow. Again, if *one heel* is allowed to become overgrown, the opposite side will become distorted, turning outward or bending inward, and a spavin or ringbone is the sequel most liable to follow; while an overgrown toe throws the weight back upon the pastern joints; this, if allowed to remain for any length of time, sets up an irritation, lameness and perchance a ringbone follows. In fact, we are of the opinion that nine-tenths of all ringbones and spavins found on young horses are the results of one or the other of the foregoing conditions.

In the natural foot, it will be observed, that the front two-thirds of the foot is composed of the thickest and strongest part of the hoof, which is reinforced by the pedal bone, rendering it firm and unyielding, while the remaining back portion of the foot is made up of soft, elastic material, designed to ward off concussion as the foot comes in contact with the ground. The colt's foot grows more rapidly than do the feet of horses of mature years; for this reason, the shod foot of the young horse is soon out of balance, and when out of balance, at once starts on the down grade to ruin.

From an anatomical, physiological or functional point of view, it appears to us worse than folly to nail shoes on the feet of any colt before it is four or five years old. Should it be deemed necessary to break and drive a colt, drive it barefoot; should the hoof wear off sufficient to produce lameness, turn it in the pasture field, and nature will do the rest. The feet of all young horses will, unshod, withstand as much hardship as the undeveloped bones and muscles should be called upon to endure.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

ATROPHY OF THE OPTIC PAPILLA. Atrophy of the optic papilla with blindness may result from various traumatisms to the head. In Remond's case it was associated with the lesions of disseminated choroiditis.

The mare under the saddle had shown evidence of imperfect vision, and when the left eye was blindfolded was apparently blind

Examination of the Eye. Volume and tension normal; pupil contracted, but dilating completely after the use of atropine; media normal; papilla very pale, anæmic, with a clear and regular outline; papillary and retinal vessels indistinct and small. The morbid paleness of the papilla was very evident by comparing it with that of the left eye. Above the optic papilla there were numerous areas of disseminated choroiditis, with a whitish, grayish, or reddish base. A subsequent examination showed that the optic papilla was absolutely without vessels, pigmented, and deformed at its inferior border by the progressive choroiditis.

According to some writers, disseminated choroiditis is a benign affection, but only on condition that it remains confined to this part of the uveal tract; on the other hand, the inflammation is liable to spread to the optic papilla, and thus cause its atrophy.

The treatment, which was ineffective, consisted of 20 centigrammes of nitrate of pilocarpine every ten days and 20 grammes of iodide of potash daily.—*Rec. de Med. Vet.*

ARRHENAL. Gautier has discovered a number of arsenico-methylic products, among which is arrhenal. Thébault (*Bulletin de Therap.*) published the following conclusions:

1. Arrhenal has given brilliant results in all cases in which arsenic is indicated, and in much less time than is required for the cacodylates or Fowler's solution.
2. Excepting some accidents, which may have resulted from too large doses of an impure drug, no toxic effects have been observed.

Arrhenal possesses a great advantage over the arsenical preparations that possess therapeutic value.—*Rec. de Med. Vet.*

ACUTE ULCERATIVE ENDOCARDITIS COMPLICATED WITH INFARCTS. Subject, a bitch, succumbing in three days to the removal of a tumor of the mammary gland.

At the necropsy Petit found the following alterations: Acute generalized enteritis, congestion of the liver, and infarcts in the spleen and kidneys. The heart showed an ulcerative endocarditis, localized especially upon the aortic sigmoid valves. Two of these valves were the seat of a large ulceration and covered by a loosely adherent layer of fibrinous deposit, which was the probable origin of the infarcts. The third valve had a perforation in the centre covered by a layer of fibrin. This lesion of the aortic valves caused aortic insufficiency, which was not recognized during life.

The operation possibly hastened the evolution of the symptoms, but the cause of the previous existence of the endocarditis was not determined.—*Rec. de Med. Vet.*

RECTAL INSUFFLATION OF AIR IN CERTAIN FORMS OF COLIC. Since air forced into a collapsed tortuous tube will cause the latter to assume its normal form, Hermans conceived the application of this same principle in abdominal disorders due to a changed position of the intestines.

One case was in this manner treated with success. The subject, a foal, two-and-one-half months old, had suffered from colic for thirty-six hours, which had resisted the use of saline purgatives and repeated clysters. The animal was lying down, extremely depressed, in a state of profound coma, and had no passage for thirty-six hours. Every means having failed, Hermans insufflated the intestines through the rectum with a bicycle pump attached to the nozzle of a rectal syringe. When the insufflation was considered sufficient the foal was made to rise and to walk. An hour afterward defecation commenced, the colic ceased, and the foal suckled. —*Ann. de Med. Vet.*

CANCER OF THE OVIDUCT, LIVER, AND KIDNEYS IN THE HEN. The oviduct was the seat of a tumor as large as an apple, which enclosed a well-formed egg, covered with its shell. The egg could not be expelled on account of the occlusion of the duct. Small, white nodules were disseminated through the tissue of the kidneys. The liver presented a voluminous tumor, 10 cm. long, 8 cm. wide, and 4 cm. thick.

Histological examination of sections of the tumors proved them to be cancer.—*Rec. de Med. Vet.*

REPORTS OF CASES.

RUPTURE OF RECTUM AND VAGINA IN A MARE DURING PARTURITION: SUCCESSFUL TREATMENT.[1]

BY S. H. BAUMAN, D.V.S.,
BIRMINGHAM, IOWA.

ON March 29, 1902, I was called to Keosauqua to see a fine saddle-bred mare, and was informed by the owner that the mare had been delivered of a colt through the rectum. That he had been watching the mare and went to the house for a short time, and on his return to the barn found the front legs and nose protruding from the rectum. He undertook to shove the colt back, but could do nothing. The colt was delivered in a short time and seemed all right. I arrived about five hours after the birth of the colt. The mare was uneasy and nervous, but otherwise was all right. Upon examination I found the rectovaginal septum completely ruptured. The perineum was not torn through, but the rupture extended down to the left of the vulva close to the hip. It being late, and not having a suitable place to operate, I had the mare brought to my barn next day, when I bought the mare and the colt. On examination I found the parts badly swollen. No feces had been passed since parturition, and the vagina was completely filled. After removing the contents and thoroughly cleansing the parts with a creolin solution I allowed all ragged edges to remain, not doing any trimming with the scissors or knife. I took heavy twine and tape and put in as many sutures as possible, part interrupted and others of any kind I happened to get; then packed the vagina completely full of carbolized oakum for a support to the stitches. The mare was tied so that she could not lie down. The fecal matter was all drawn by hand and the packing in the vagina changed every third day. Whenever a weakening in stitches was found a new one was inserted. In about twenty days the septum between the vagina and rectum was completely closed. My great trouble was in the external opening. The excrement would work down into the rupture in spite of all I could do, and in cleaning out the same had to break granulations almost as fast as they would form, so I commenced to remove the feces with the hand again and not allow the mare to do any straining, and in a short time the opening closed. The mare was turned into pasture in about six weeks, but it was August before I quit treatment. Weaned the colt in September and commenced driving the mare October 1st. The only inconvenience I find is, that the anus remains slightly open when the mare is very gaunt after a long and hard day's drive. By the way, I have one of the best drivers I ever owned. The filly is a splendid and very promising one. Owing to the nature of the food and the fasting, the mare did not furnish sufficient nurse for the colt, so we had to feed cow's milk, which I diluted with water and added lime-water, sugar, and brandy.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, Cedar Rapids, Iowa, January 14 and 15, 1903.

OBSTRUCTION OF BOWELS IN A HORSE, DUE TO ABSCESS IN THE LUMBOSACRAL REGION.[1]

By S. H. Bauman, D.V.S.,
BIRMINGHAM, IOWA.

In 1898 I was called to a case of colic, but the horse died before I arrived. The history of the case was that the horse had shown a few colicky symptoms for more than a week, but, as he was in pasture and kept eating, the owner paid little attention to him. But on the day I was called he found the horse in a serious condition, with result as stated above.

I found, in making the post-mortem examination, all organs normal except the bowels, which were impacted, and especially so was the floating colon. After removing the bowels, and not being satisfied that I had found a sufficient cause for death, I continued my examination and found an abscess immediately beneath the lumbosacral articulation. The abscess was almost as large as the crown of a hat, and had pressed up on the rectum so as to completely obstruct the bowels. On opening the abscess, which was about ready to break, I found over a pint of pus. Since that time I have had quite a number of these cases, and whenever I have an obstinate case of impaction, especially where the horse points high, I make an examination, and it is surprising the number I have found. All these abscesses are similar and in the same location. The last one I had was December 26, 1902, in a fine mare. A description of this case will answer for all. The horse is drowsy, paws a little once in a while, lies stretched flat on the ground, turns the head to the side and points very high, as a rule—but I have had them where they pointed low—gets up, grazes for a time, and lies down as before, and remains in this position for quite a while; have never seen any bloating in these cases. The only treatment required is to remove with the hand all the feces and repeat this as often as the back bowels become obstructed. When this is done the horse will resume eating. As soon as the abscess is sufficiently developed either break through the rectum with the finger or cut through with a short, hooked knife and evacuate the abscess. No medicine is required in any of these cases except carbolized oil. Do not allow the animal to have much bulky food. Many of these cases will break quickly, and the horse will recover of his own accord. All the cases I have had recovered, but I have had several which formed satellites, which required treatment as above for ten to fifteen days. There are no external symptoms as in cases of furunculus close to the anus, in which we always have external swelling. The only theory I can advance as to the cause of these abscesses would be some injury to the vertebræ at this point, or possibly a severe sprain.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, Cedar Rapids, Iowa, January 14 and 15, 1903.

EMBOLISM OF THE PULMONARY ARTERY IN A HORSE.[1]

By J. W. Scott, V.S.,
MANCHESTER, IOWA.

I WILL report to you a case which I diagnosed to be embolism of the pulmonary artery, but which has not been proven by post-mortem, as the animal (a bay mare about eight years old) is still alive and in the same condition as when I saw her last August. The early history of the case, which I obtained from the owner, showed that the animal had been healthy until some time during the late winter or early spring of 1902, when she commenced to show symptoms of weakness and dyspnœa when at work or moving rapidly. These symptoms were not apparent if the animal was allowed to stand. Her appetite was normal, and all the organs of excretion and secretion were normal. Her condition was attributed to the fact that she was heavy with foal, but this was disproved when parturition occurred. Her condition remained unchanged and she was kept in the pasture until an opportunity came to dispose of her.

Her owner at the time of my examination got her in a trade some two weeks prior, and he informed me that as he drove out of the town toward his home, which was about four miles distant, the animal showed symptoms of falling. These symptoms were speedily developed into fact, for before he could unhitch from his vehicle the animal was floundering on the ground fighting for breath, and was, as he supposed, in her death agony, from which it took about fifteen minutes to recover sufficiently to regain her feet. After resting for an hour he rode her slowly to his home and turned her to pasture, where she remained without further incident until the day I was called in to examine her.

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[1] Read before the fifteenth annual meeting of the Iowa State Veterinary Medical Association, Cedar Rapids, Iowa, January 14, 15, 1903.

Examination conducted in the field revealed no indication of disease, the pulse, respiration, and temperature all being normal. She was then haltered and led at a sharp trot for about one hundred yards, which occasioned some excitement, the breathing being rapid and tumultuous. We then harnessed her, being careful to select a good-fitting collar, which could in no way interfere with breathing or the free passage of blood in the jugular veins, and hitched her with another animal to an empty wagon. We started at a slow pace toward the road, which was not more than sixty yards distant. By the time we reached the gate she commenced to stagger and the driver stopped. She was quite excited, the mucous membranes were cyanotic and the breathing stertorous. The submaxillary artery was full, but pulsation was feeble. She recovered her composure very quickly. I then instructed the driver to go ahead and keep going until I asked him to stop. After going about one hundred yards, I judged from the character of her breathing, which was loud and hoarse, and the excited manner in which she threw her head from side to side, that she had about reached the limit of exertion to which she could be safely subjected, so we stopped, and, with her struggling and surging and dashing the head wildly about, we managed to get her unhitched from the wagon, but before we could remove the harness she fell to the ground, gasping for breath and giving evidence of the greatest distress. This agitated condition was of such long duration and of such severity that recovery seemed doubtful, and her efforts were so violent that I could not make any examination at this time; but, as the more furious symptoms subsided, I approached and felt for her pulse. The artery was full but motionless, the mouth and nasal membranes of a leaden color, and circulation was to all appearances completely stagnated. I placed my finger on the jugular and made an unsuccessful effort to raise the vessel. It was almost half an hour before she was able to regain a standing posture, and was not wholly recovered when I came away about one hour later.

What pathological state would be most likely to call forth these symptoms? That the trouble was one of circulation I felt well assured, and that it was thrombosis or embolism of some important vessel appeared to be the only rational conclusion. After mature deliberation, I pronounced it to be embolism of the pulmonary artery, and will give my reasons for believing that this diagnosis was correct. The common aorta and the pulmonary artery are the only vessels in the body which carry the whole volume of the blood. The latter leaves the right ventricle and proceeds to the upper level of the auricle, then backward a short distance, the entire length of the vessel being four or five inches. Here it divides into right and left branches, each of which conveys the blood to its respective lung. It is now returned to the left heart by the pulmonary veins, and the whole volume is forced by the contraction of the left ventricle through the common aorta. Occlusion of either of these vessels would cause a complete stagnation of the whole circulatory system, and would, consequently occasion just such symptoms as those I have described, and, if continued for any length of time, death would be the result. Therefore, occlusion could not have been complete in this case. Why should those symptoms be seen only when the animal is subjected to exertion? This is a question to which a conjectural answer must be given, and in answering I make use of a theory which explains this, also why it is most likely that the impediment was in the pulmonary artery. I will first call your attention to the difference between a thrombus and an embolus. A thrombus is an obstruction to a vessel by a clot which is adherent to the vessel's wall, and consequently stationary. An embolus is a clot floating in the blood stream and may not occasion any great hinderance to the blood flow unless forced along into the narrow part of the vessel, where it may completely plug it. Now, it is evident that if the difficulty were due to thrombosis, the distressing symptoms would have been constant, as any obstruction remaining at the site of formation would interfere with the blood flow to almost the same extent during the period of rest that it would when at work. This is not the case in embolic obstruction, as the symptoms are aggravated when the clot reaches a narrow part of the vessel. In the case under consideration, when the animal is exercising the blood moves in the aorta with more force, and as a consequence the obstructing mass is pushed along to the bifurcation of the artery and lodges there, producing obstruction and rendering the whole circulatory system inactive. During quiescence of the animal the embolus becomes lodged in the widest part of the dilated artery and equilibrium is restored.

But what distinguishing symptoms would be presented if the obstruction were in the systemic aorta? The answer must be conjectural and is based upon our knowledge of the anatomy of the heart. The walls of the left ventricle are of about three times the thickness of the right, and have a contractile power proportionately greater, which drives the blood with such force through the aorta that were an embolus contained therein it would be forced to the juncture of the posterior and the anterior aorta, from which place it could not recede, and the symptoms would be continuous until the heart, now distended with blood and wholly powerless to urge it past the obstruction, would cease its efforts, death occurring in a few minutes after the first indication of distress.

DISCUSSION.

Dr. Heck said he had a case which resembled this somewhat, and that he made a diagnosis of spasm of the glottis.

Dr. Walrod said he thought Dr. Scott's case might be one of arterio-sclerosis of the large arteries.

Dr. Repp said he would expect to find at autopsy either thrombosis alone, or aneurism combined with thrombosis, in one of the large arteries near the heart. The appearance of the trouble on exercise could be explained by the fact that the demand upon the circulation was greatest at such times, while when the animal was at rest, the demand could be supplied notwithstanding the obstruction.

Dr. Simpson mentioned two cases in horses in which there were heart murmurs, but he did not ascertain their exact nature.

FIVE CASES OF AZOTURIA.[1]

BY A. S. BRODIE, V.S.,
CEDAR FALLS, IOWA.

CASE I.—Bay gelding, down twelve hours before I was called. Treatment: Emptied the bladder with the catheter and took four quarts of blood from the jugular vein. Dissolved 16 drachms of sodium chloride in three gallons of water and gave it subcutaneously. The horse was on his feet twelve hours after. Gave no further treatment and recovery was good.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, Cedar Rapids, Iowa, January 14 and 15, 1903.

Case II.—Treated the same way, only gave the second injection twenty-four hours. The animal was on her feet the next day.

Cases III. and IV.—Treated the same way and made good recovery. The parts where injected became swollen from the amount of water injected, but all passed away in a few hours.

Case V.—Bay mare, fourteen years old. Had stood three days in the stable, was driven three miles and went down. The gluteal muscles were very much swollen and she was showing abdominal pain. Treated the same as the others. Died three hours after. Post-mortem revealed an aneurism in the left iliac artery. Was the aneurism the cause of death? This case had been going lame suddenly at times for two years in the left limb, and would be in great pain and break out in a sweat, but would be all right in twenty-four hours.

Discussion.

Dr. Heck thinks the most important part of the treatment in azoturia, is good nursing.

Dr. J. W. Scott said that he only seldom catheterizes a male that suffers from azoturia.

Dr. Simpson said that he thinks catharsis is strongly indicated in azoturia. He uses eserine or calomel.

In reply to an inquiry by Dr. Repp, a number of members said that they have a common experience with azoturia in the anterior part of the body without involvement of the hind parts.

Dr. Malcolm thinks diuretics contraindicated in azoturia, but considers it useful to stimulate the bowels and liver.

Dr. McLeod uses potassium bromide internally, to quiet the animal, and makes applications of hot water to the loins.

Dr. C. E. Stewart also reports better results from bromide of potassium than from any other drug.

HISTORY OF A CASE OF TETANUS.

By R. Barnes, V.S.,
LONDON, ONT.

On October 16, 1902, I was called to see a bay horse, ten years old, weight about 1100 pounds, used as a cab horse, which presented the following symptoms: cervical and muscles of back rigid, ears pricked, head poked out, tail slightly elevated, difficult respiration; upon the least excitement he appeared very nervous, would retract eye until membrana nictitans would obscure it; temperature 103°, pulse 80; could masticate very little. Diagnosed it tetanus. Owner informed me it had been acting strange for a few days; I examined it to find if possible the point of infection, but was unable to do so.

Decided to treat it. Had the animal at once removed to a darkened, airy stall, and placed in slings; ordered but one attendant to look after him; his food was to be of a sloppy character and abundance of fresh water to be kept so he could get it; ordered enemas three or four times a day. Gave potass. nitras, 1 drachm; mag. sulph., 1 ounce; sod. hypo. sulph., ½ ounce, to be repeated three times daily as long as he was able to take it in his food.

Left solution as follows: Acid, carbolic, 2 drachms; glycerin, 2 drachms; aquæ dest., add 4 ounces; 1 drachm to be given hypodermically every two hours.

Second day, not much change except in pulse, which had fallen to 60.

Third, fourth, and fifth days, scarcely any change except in pulse, which had fallen to 35; stopped enemas, as bowels were moving freely.

Sixth and seventh days, not much change, pulse down to 30; ordered hypodermics every three hours.

Eighth, ninth, tenth, and eleventh days, unfavorable symptoms gradually increasing. On twelfth day could not drink, extremely nervous and excitable, and no doubt would have fallen if not protected by slings; pulse 90; ordered hypodermic every two hours and enemas as before.

The thirteenth, fourteenth, and fifteenth days, symptoms abating; on sixteenth day was able to suck down some gruel; ordered same powder to be given in feed as usual; pulse 45.

The seventeenth, eighteenth, and nineteenth days, improved each day; ordered hypodermic every three hours; pulse 35.

The twentieth, twenty-first, and twenty-second days, symptoms more favorable, could masticate slowly, choice bits of clover hay were given; hypodermics every six hours.

The twenty-third, twenty-fourth, and twenty-fifth days, doing remarkably well, eating well; hypodermics three times a day.

The twenty-sixth, twenty-seventh, and twenty-eighth days, rigidity of muscles disappearing; stopped hypodermics.

The twenty-ninth and thirtieth days, continued to improve; removed slings.

The thirty-second day, ceased giving medicines; could walk around stall nicely. Ordered that light be gradually admitted into stall. By the fortieth day symptoms entirely disappeared. Ordered slow walking exercise, which was increased until on the fiftieth day, the horse was at his old occupation, that of pulling a hack.

Owner reports that the only difference he notices is that he is more nervous than previous to his sickness.

REPORT OF A CASE OF FUNGOSUS TOXICUM PARALYTICUS.[1]

BY W. A. SWAIN, V. S.,
MT. PULASKI, ILL.

ON the night of August 15, 1902, I was called to attend a valuable imported German coach stallion belonging to a company of men in Mt. Pulaski, Ill.

Upon my arrival I found the horse apparently suffering from a mild attack of indigestion, having a normal temperature and heart action. He did not seem to be suffering much, and I anticipated no serious trouble in soon having him all right.

I gave him a dose of ordinary colic mixture, such as I use for colic, and waited an hour, to find him with no material change. I then repeated the dose which I had given at first, and at the end of one hour there was still no perceptible change.

I now decided to administer an active physic, which I did, giving him four drachms of aloin, together with about four drachms of powdered zingiber. This seemed to afford him some relief. In about one-half to three-quarters of an hour from the time of administering the above physic the patient ceased manifesting uneasiness and stood quietly in his stall. His temperature at this time was normal; pulse, about normal; breathing, if anything, a shade slower than normal. He seemed to be rather stupid and sleepy, and paid little attention to what was going on around him.

I did not like his appearance, and, after consulting with the owners of the horse, we decided to call my father, Dr. S. H. Swain, of Decatur, in consultation. He was to come over on the early morning train. I then lay down and slept until a few minutes before he arrived, and did not see the horse again until he came, at which time we were surprised to find him manifesting strong symptoms of food poisoning. The first and one of the most prominent symptoms to attract attention at that time in this case was an apparent attempt to eat. The patient would thrust his nose into the hay, and to a casual observer would seem to be eating, but on closer observation it was seen that he was only nosing in the food in an unconscious condition. When led from his stall he was almost unable to stand, showing great lack of co-ordination, with pupils of eyes dilated and tongue hanging from mouth. The power of deglutition was entirely lost, making it impossible to administer medicinal agents per os. Temperature at this time, 98⅖°; pulse, about 22; respiration very slow and stertorous.

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[1] Read before the Illinois Veterinary Medical and Surgical Association, January 14, 15, 1903.

On questioning the attendant we learned that two or three days prior to the manifestation of the above symptoms the horse had torn up the floor of his manger, which had a false or double bottom, and had eaten a quantity of mouldy chaff which had there accumulated. We pronounced it a case of fungosus toxicum paralyticus, and ascribed the cause to the eating of impure, mouldy food, as described above.

We gave him by hypodermic injection one-half grain strychnine and forty minims fluid extract digitalis, and had him moved about for about an hour. His temperature was again taken and found to have gone still lower, being now 96½°, pulse almost imperceptible, respiration practically the same.

We tried two more hypodermic injections of strychnine and digitalis at intervals of an hour, with unsatisfactory results as to temperature and heart action. We then decided to try intravenous injections of stimulants; and for this purpose we agreed upon strong aqua ammonia, which was diluted with equal parts of distilled water and injected into the median subcutaneous vein, administering two-drachm doses every thirty minutes, with the most satisfactory results. Shortly after the first injection the temperature responded and rose to 98½°, pulse 35, respiration more natural.

We administered in all four injections, thirty minutes apart, at the end of which time the temperature was 103°, pulse 48, and respiration practically normal. The pupils of the eyes had assumed their normal appearance, and the power of deglutition had returned, together with the use of the tongue, which was now kept within the mouth in a normal position.

The subsequent treatment consisted of stomachics: tr. gentian, two drachms; tr. zingiber, four drachms; tr. nux., two drachms; hydrochloric acid dil., one drachm, mixed and given at one dose, repeated three times daily for a period of about two weeks.

He was then changed to powders composed of about the above ingredients, less the hydrochloric acid, given three times daily in feed.

Our patient made a complete, although not very rapid, recovery, not being fully himself for about six weeks.

EDITORIALS.

WHAT IS THE MATTER WITH THE VETERINARIANS OF NEW YORK STATE?

On the 11th of February the New York State Senate and Assembly Agricultural Committee held a joint meeting for the purpose of hearing arguments for and against a bill to require a clean bill of health covering neat cattle shipped into the State for dairy or breeding purposes.

This is a bill that is of vital importance to the health of the live-stock of New York State. A number of States have laws of this description. In fact, practically all of the States touching upon New York State to the east and south have such a law, and it has been stated frequently by distinguished veterinarians of New York that the absence of this protection has the effect of bringing to New York State more than her natural proportion of tubercular cows. A great effort is being made all over the world to find a means of repressing tuberculosis of cattle and to put into operation measures that are planned to have this effect. This work is distinctly veterinary work, and the veterinarians are the natural experts on the questions pertaining to it. When the law-making body of a State has before it a project relating to this subject the natural experts to give such a committee the advice and counsel that it must have, if it is to enact wise laws, are veterinarians. But in New York State, for some reasons, the veterinarians are content to occupy a subordinate and humiliating position; a position that should be most humiliating to them and is deplored by the profession in other parts of the country. When this question of inspecting dairy cows and cattle for breeding purposes for the control of tuberculosis was before the Legislature it appears that the chief arguments were made by Senators and Assemblymen, by men representing the Buffalo Live-stock Association, by cow dealers, by the Commissioner of Agriculture, and by the Assistant Commissioner of Agriculture. In the accounts of the hearing that have reached us there is no intimation that the voice of a veterinarian was heard on this distinctly veterinary question.

The first bill signed by the Governor of New York State during the present session of the Legislature was one appropriating $10,000 to the Commission of Agriculture for use in enforcing the quarantine against the New England States on account of foot-and-mouth disease. Why was this money not appropriated to a State Live-stock Sanitary Board, State Veterinary Board, or to a State Veterinarian? For the reason that no such organization or official exists in New York State. Why do they not exist? To answer this question we must first have an answer to the following: What is the matter with the veterinarians of New York State?

VITALITY AND IMMUNITY.

THE most excellent article now current in the JOURNAL, entitled "Vitality and Immunity," should be read by every JOURNAL subscriber. It is a *résumé* of the most advanced work done at home and abroad along those lines that have shed so much light upon the dark paths of pathology. It is written in a most attractive and readable manner, and is just one of those presentations of a broad subject that should be familiar to every progressive student of comparative medicine. It is destined, when carefully considered, to awaken a broader, deeper, and better interest along true lines of preventive medicine than any article we have presented our readers for a long time. Dr. Schulin deserves well at our hands for this timely article, and we trust the JOURNAL readers may be favored again by the wealth of his pen.

NECROLOGY.

JOHN AIRTH, M.R.C.V.S., of Sioux City, Iowa, died in November last from asphyxia, due to his inadvertently turning on the gas in a stove which he used in his room for heating purposes. His funeral was conducted by the Sioux City Thistle Club, of which he was a member, and it was largely attended by his numerous friends and acquaintances. Dr. Airth was one of the pioneer members in the Government Service, holding the position of Meat Inspector for two years. During the past year he made a trip to South Africa in charge of a shipload of mules. On his return trip he visited his old home at Dumfriesshire, Scotland. Shortly after his return he met with this fatal accident. For the past seven years he was in active practice at Sioux City, Iowa, and was a very successful and popular veterinarian.

ABSTRACT OF REPORT OF THE STATE VETERINARY SURGEON FOR MONTANA.

THE success and prosperity of the live-stock industry of a commonwealth depends largely upon the healthfulness of its domestic animals, and the general condition of the domestic animals of Montana to-day from a health point of view is most satisfactory. There are a number of factors conducive to this most happy condition in our State, one among which is the existence of the major portion of our domestic animals under perfectly natural conditions—that is, the major portion of the domestic animals of Montana live an all-out-of-door life that is conducive to good health and strong constitution. The other important factor having a decidedly direct influence in this regard is our most excellent live-stock sanitary laws, the intelligence of our live-stock growers, and the personal interest taken by our live-stock growers in enforcing sanitary regulations. Experience and carefully conducted scientific experiments have shown that disease-producing germs or organisms cannot live or thrive in bright sunlight. It is not difficult, therefore, under ordinary range conditions, if a contagious disease is introduced to manage and repress it by carefully enforced sanitary regulations. However, conditions are changing in our State, and within a few years a majority of our domestic animals will be under a much closer system of domestication. The open range will give way to fenced pastures, the corral and shed will be superseded by barns and stables. The native hay will be supplanted by cultivated grasses, the cattle whip will take the place of the lasso, and a complete change will necessarily occur in the handling of all our domestic animals. It is important, therefore, that this change should occur with due regard for sanitary surroundings and the prevention of diseases. In crowded cities or closely settled rural districts where domestication is practised in its full meaning, all diseases are usually more frequent than they are under perfectly natural conditions. Unsanitary stables, improper food, and generally bad hygienic surroundings are conducive to the development of non-contagious and non-infectious diseases as well as in the propagation of devastating contagious and infectious animal diseases. Accidents and non-contagious and non-infectious animal diseases are occurring with more or less frequency in all communities, and it is, therefore, our duty to acquire and utilize all the knowledge possible toward the prevention of diseases. Therefore, as our conditions change in Montana, it is to be hoped our live-stock growers will take cognizance of these facts and in the construction of their stables and sheds, give careful consideration to light, ventilation and drainage. The dark, badly drained, unsanitary stables of the East and in Continental countries have been responsible for the rapid development of tuberculosis among cattle and other diseases inimical to public health. The education and intelligence of the stock-grower is the most potent factor in the prevention and suppression of contagious or infectious animal diseases, and Montana is most fortunate indeed in having one of the most intelligent stock-growing communities in the world, therefore one of the freest, if not the freest, State in the Union from contagious and infectious animal diseases, and it should be our aim to so maintain it. The great majority of stock-growers throughout Montana take a personal interest in the healthfulness of our domestic animals, and contrary to the custom obtaining in other States where nearly all reports of contagious or infectious disease are made by neighbors or others acquainted with the suspected fact, in Montana it is almost invariably the rule that the owner personally makes such report and is the most anxious of all to have the matter investigated, and is the most active one in assisting by every means within his power in its repression.

This distribution of blackleg vaccine has saved our cattlemen many thousands of dollars annually. In fact, figuring the loss at 2 per cent., which is a very low estimate, the free distribution of vaccine is saving our cattle interest at least $40,000 per annum in loss from this disease. Vaccination against blackleg has become so universal throughout Montana, that it is safe to say fully 90 per cent. of our cattlemen are familiar with the operation and are successfully employing it every year.

Tuberculosis. Fortunately, so far, we have but little tuberculosis in our State. I believe that I can safely say there is no tuberculosis among range cattle. There is probably some tuberculosis among dairy herds throughout the State, but so far it has attracted but little, if any, attention from owners if it does exist, and but few cases have been discovered, only eight animals being destroyed on account of tuberculosis during the year. The important thing for us to do is to endeavor to keep Montana free from this animal scourge, which we can certainly do by the strict enforcement of rigid quarantine regulations and by insisting upon a health certificate, including tuberculin test for all breeding or dairy cattle shipped into the State. I regard as the greatest menace to our general cattle industry the possibility of the existence of tuberculosis among the dairy herds of our State; but it is an utter impossibility for this office to test all the dairy herds in Montana without considerable additional assistance. In my opinion, which is based upon general observation, the dairy herds of Montana are comparatively free from this source. In any event, if the disease exists, it has not attracted sufficient attention to demand investigation; however, tuberculosis among cattle in many instances is such an insidious disease, that it does not attract the attention of the laymen. Municipal meat- and milk-inspection must ultimately be adopted in our State, and its inauguration and maintenance under competent administration will not alone be of inestimable value from a public health standpoint, but will materially lessen the possibility of serious infectious or contagious disease to our beef herds.

Prof. Behring, of the University of Berlin, has recently published a preliminary report of his antitoxin against tuberculosis and has shown conclusively that he has an antitoxin that is efficacious. His experiments during the past four or five years have shown that this antitoxin has sufficient immunizing power to protect cattle against artificial attempts at infection; this being the case, it is safe to assume that this antitoxin will certainly protect against the natural methods of infection, which are less direct and have less potent powers of transmission than the artificial means. The perfection of this antitoxin and its universal employment means more to the cattle industry from an economical standpoint than any discovery that has been made in the medical world.

Blackleg. Blackleg vaccination has become so general throughout Montana that the loss from this disease is comparatively insignificant. There have been but few reports of losses from blackleg during the past year. All of these have been investigated, and in every instance the percentage of loss was less than one-half of 1 per cent. If vaccination against blackleg increases in popularity as it has during the past five years, within another ten years it is pretty safe to assume that blackleg will be an unknown disease in Montana.

Glanders. During the past year eighty-three horses have been destroyed on account of glanders, and 1593 placed in quarantine on account of being exposed to this disease. Glanders should be an unknown disease within our borders, and it would be, were it not for the carelessness of many of our owners in constantly keeping a horse suffering from this disease in contact with his healthy horses. I have endeavored to impress upon our horse-owners the importance of isolating all suspected horses until such time as they are proved free from this most serious of all horse diseases, and I again desire to call the attention of our horse interests to this important matter. Whenever a horse is found suffering with a chronic discharge from the nose, he should be at once isolated and kept entirely away from all other horses until he has been examined by a competent local veterinarian or one from this office. If this procedure is faithfully carried out, there will be but little trouble in ridding our State of glanders.

So-called Montana Horse Disease, Swamp Fever, Malaria of the Horse or Mountain Fever. This disease has occurred among possibly fifty head of horses in various localities throughout the State during the past year. In the Red River Valley of the North, the same disease obtains and is more destructive in that locality than it is with us. Recently some investigations have been carried on relative to this disease in the Minnesota State Bacteriological Laboratory. The results of this investigation have not as yet been given out, but it is claimed that they have discovered a micro-organism to which the disease is due. In years past this disease has been very destructive in different localities in Montana, a few owners having met with very great losses. One of the heaviest losses reported to me, which occurred some time during the early nineties, was among a band of horses owned in Meagher County, in which it was claimed, I believe, that about 500 perished. Did the disease continue to exist in this manner or reappear so as to occasion such serious losses, it would be a most serious affair. In many respects the so-called Montana Horse Disease resembles closely an Asiatic disease known as "surra;" however, they are not identical. The "Montana Horse Disease" always occurs in swampy localities, and I have regarded it as being due to some micro-organisms obtained through the medium of the food, or some animal parasites picked up by horses in these swampy areas. Investigation will ultimately prove the truth of this conjecture. In any event, the disease is of sufficient economical importance to warrant its careful study.

Contagious Abortion among Cattle. Contagious abortion among cattle has occurred to some considerable extent in a number of localities throughout the State during the past year. This is a most disastrous disease and one exceedingly difficult to deal with under the most favorable conditions. It is particularly difficult to manage under range conditions.

However, where cattle are under close domestication, it can be controlled by careful attention to ordinary sanitary measures, such as the thorough disinfection of stables and sheds, by disinfecting the bull and keeping him away from cows for a few weeks, and by injecting the exposed cows two or three times a week with 2 c.c. of a 5 per cent. solution of carbolic acid, this injection to be given hypodermically with the ordinary blackleg vaccine syringe. The bull's penis should be washed with a weak solution of creolin, the sheath injected with the same solution, and all the lower portion of the belly be carefully washed in this solution once every day or two for at least a week. All manure and litter of all kinds should be cleaned out of the sheds and stables, spread out in the sunlight to dry, and then be carefully burned. Sheds and stables should be thoroughly whitewashed with whitewash containing at least 2 per cent. of carbolic acid, and where possible sheds should have roofs removed so as to permit the sunlight for several weeks to do its part in disinfecting the interior. Stables should be as thoroughly aired as possible after disinfection and all the sunlight permitted to enter that is possible.

Contagious Ophthalmia or Pink Eye of Cattle So-called. This disease of the eyes of the cattle is too well-known throughout the State to warrant description, as it has appeared very generally all over the State during the past three or four years. It is impossible to treat range cattle, but, fortunately, the disease is not destructive to the sight, excepting in a very small percentage of cases. It is true that during the continuance of the disease, the animal loses condition rapidly, and some of them, where both eyes are affected, if away from water, are likely to suffer considerably from thirst and consequent loss of condition. The disease during its continuance is evidently quite painful, and the majority of thus affected droves of cattle do not thrive during its continuance, but within from two to three weeks recover their normal condition, with a very small percentage losing one eye. It is rare indeed that both eyes are destroyed. Domesticated cattle can be materially benefited by treatment. It is advisable in cattle that can be handled, on the appearance of the disease, to at once separate the diseased from the healthy, and to the diseased administer a dose of Epsom salts—to an adult, from one pound to one and one-half pounds; proportionately smaller doses for younger cattle. Bathe the affected eyes two or three times a day in salt-water solution, one teaspoonful of salt to each quart of water that has been thoroughly boiled and allowed to cool. In addition to this, a few drops of the following solution in the eyes twice a day will be found of benefit: sulphate of zinc, 2 grains; sulphate of atropia, 4 grains; and distilled water, 1 oz.; mixture. An eye-dropper half-full injected into each eye morning and night. It is of importance, where possible, to keep these animals confined in a dark shed or stable, as the light is extremely painful to them.

Hog Cholera. Hog cholera has appeared in three different localities in the State during the past year, and in every instance the infection was believed to have been traced to the railroads. Many hogs are shipped into Montana annually from Eastern States in which cholera constantly exists, and occasionally hogs develop cholera after being loaded into the cars. The débris from these cars shaking out along the right-of-way and into streams as the cars pass over bridges, has been responsible for nearly all of our infections.

Railroad companies should be compelled to disinfect all cars in which swine are transported after each shipment. In fact, all cars used for the transportation of any domestic animals should be so treated.

Poisonous Plants. Poisonous plants also contribute their share in occasioning losses among our domestic animals. During the past year losses from this source have been investigated among cattle, the most serious being due to lupine and water-hemlock. It is impossible to guard against these losses under range conditions, but where cattle are herded or pastured, the affected localities can be avoided, or, if not too extensive in area, can be fenced off so that they are inaccessible to animals. When animals suffering from plant poisoning are found in time, the administration of from ten to fifteen grains of permanganate of potassium, dissolved in from one pint to one quart of water, and repeated once or twice at an interval of an hour or two, will usually cure. It is always well after the animal has recovered from the acute effects of the poisoning, to administer a physic of Epsom salts or raw linseed oil. In the case of cattle, administer from one pound to one and a half pounds of Epsom salts, and of raw linseed oil from one quart to a half gallon.

Kaffir Corn Poison. As Kaffir corn is an arid land forage likely to be quite generally used in Montana as a cattle food, it is important our cattle-growers should understand the apparent danger of pasturing this plant in its green state. Kaffir corn, it is maintained by Prof. Avery, of the Nebraska Experiment Station, contains a large percentage of prussic acid, and when cattle are pastured upon it in its green stage, they are very prone to the poison. One instance is reported in Colorado where twenty-five dairy cows out of thirty-one became sick within five minutes after they were turned into a patch of Kaffir corn, and within two hours, twenty-five of them were dead. Kaffir corn is said to be an excellent forage for cattle when cured, but it seems, from recent experiments, it is extremely dangerous in its green state.

During the year ending October 1, 1902, the number of horses inspected for glanders was 1673; number quarantined, 1593; destroyed, 83; health certificates issued, 1102; amount of money expended for burial fees, $415.00.

Number of cattle inspected, 15,602, of which 506 were for tuberculosis; 300 for blackleg; 4,200 for ophthalmia; 600 for scab; quarantined for tuberculosis, 44; quarantined for scab, 600; destroyed for tuberculosis, 8; health certificates issued, 5626; money expended for burial fees on account of tuberculosis, $40.

Number of sheep inspected for scab, ictero hæmaturia, and plant poisoning, 171,287; quarantined, 144,125; health certificates issued, 788.

There were 30,295 doses of blackleg vaccine distributed to 306 persons in the State during the year.

Number of Southern cattle for which health certificates were received, 112,567.

M. E. Knowles,
State Veterinarian.

NEW JERSEY ECHOES.

The New York contingent was unusually large at the meeting of the Association in New Jersey. Among those present were Drs. R. R. Bell, Berns, Ackerman, Robertson, Ellis, and V. A. Moore.

When President Lowe's term expires he should be placed at the head of the Executive Committee, where his wide experience would be most felt and most valuable to the profession in New Jersey.

Drs. Lockwood, King, and Hurley represented the old association which for many years was the active representative of the profession in the Seashore State.

Dr. H. P. Turner, of Lahaska, Pa., is a constant attendant at the meetings of the New Jersey State Veterinary Medical Association.

SOCIETY NOTES.

American Veterinary Medical Association. Local Committee of Arrangements, Ottawa, Canada, September 1 to 4, 1903: Drs. J. G. Rutherford (Chairman), C. H. Higgins, Ottawa; Wm. Jakeman, Halifax; G. Alarie, Comte l'Assomption, Quebec; D. King Smith, Ontario; F. Torrance, Manitoba; J. B. Hart, British Columbia.

The Allegheny Veterinary Medical Association will shortly extend its usefulness and power by changing its name to the Western Pennsylvania Veterinary Medical Association.

SOCIETY PROCEEDINGS.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting of the Passaic County Veterinary Medical Association was held at 169 Paterson Street, Paterson, N. J., on Tuesday evening, January 6, 1903, with Dr. William Herbert Lowe, President, in the chair, and Dr. T. J. Cooper acting as Secretary.

On roll-call the following members answered to their names: Drs. William J. Fredericks, Delawanna; T. J. Cooper, Paterson; John H. De Graw, Paterson; J. Payne Lowe, Passaic; W. H. Lowe, Jr., Paterson, and William Herbert Lowe, Paterson.

The minutes of December 2d were read and approved.

New Business.

Dr. Cooper brought up the matter of arranging to provide a substitute in the event of a practitioner being sick or called out of town.

Dr. Cooper thought one of the best ways of promoting the mutual interests of members was by each practitioner reporting from time to time such cases in his practice as were not responding satisfactorily to treatment.

Dr. J. Payne Lowe was in favor of the Association paying the expenses of practitioners in sending specimens to the State Laboratory at Trenton for bacteriological examination in cases where the Association received the benefit of such examination. He cited cases of dumb rabies in the dog, diphtheria in the cat, and so on, where the practitioner from a clinical standpoint readily made out a diagnosis, but where in many instances it would be advisable to have the diagnosis confirmed by bacteriological examination or inoculation experiments.

The several matters brought up under new business were laid over.

A letter was read from Dr. William C. Berry to the effect that he was quarantined at his home in the upper part of the county on account of the existence of scarlet fever in his family, and consequently could not attend.

On motion of Dr. W. H. Lowe, Jr., the Secretary was instructed to write a suitable letter to Dr. Berry conveying to him the sympathy of his fellow members.

Dr. Fredericks read a paper giving his experiments with iodide of potassium and eserine in the treatment of parturient paresis. Three cases that he had treated with these drugs recovered. Dr. Fredericks injects 3 grains eserine subcutaneously. Dr. J. Payne Lowe remarked that there was one thing sure, and that was that we did not kill any of our cases of parturient paresis now by drenching since we had adopted the modern method of treatment.

Dr. Cooper told of a peculiar case of lameness in a mare in foal, and promised to produce the mare in evidence at the next meeting.

The President appointed Dr. W. H. Lowe, Jr., essayist for the next meeting.

On motion, meeting adjourned at 10 P. M.

T. J. Cooper,
Secretary pro tem.

ANNUAL MEETING OF THE VETERINARY MEDICAL ASSOCIATION OF NEW JERSEY.

The annual meeting of the Veterinary Medical Association of New Jersey was called to order on the morning of January 8, 1903, in the parlors of the Trenton House, Trenton, N. J. The President, Dr. William Herbert Lowe, occupied the chair. Records of the semi-annual meeting, held at Newark, July 10, 1902, were read and approved.

Applications for membership were on file, as follows:

Dr. Vernon B. Height, of Asbury Park; Dr. H. R. Clark, of Long Branch; Dr. J. H. Conover, of Flemington; Dr. J. B. Jones, of Atlantic City.

All applicants were duly vouched for and approved by the Executive Committee, and were by unanimous vote admitted to membership.

A bill to change Article III. of the Constitution came before the members for final action. This bill, which came before the last semi-annual meeting for first reading, had bearing upon eligibility for membership. The change proposed was essential owing to the existence of the new law enacted at the last session of the Legislature, and provided that candidates for membership entering the profession on or after the first Monday in May, 1902, must be licensed by the State Board of Veterinary Medical Examiners and be registered in conformity with the provisions of chapter 18, laws of 1902. By vote of the Association the change in the Constitution was adopted.

A report from the Legislation Committee revealed the fact that there were some violations of the newly-enacted law regulating the practice of veterinary medicine, surgery, etc. Dr. A. T. Sellers, of Camden, reported a case of illegal practice. Dr. Vernon B. Height, of Asbury Park, reported that with Dr. H. R. Clark, of Long Branch, he had been instrumental in the arrest of an illegal practitioner in his section of the State. The case was to have come before the Grand Jury on the day of the meeting, January 8th, and the fact that the defendant had communicated with his accusers, seeking for clemency, would indicate his acknowledgment of guilt and fear of retribution.

The report of the Legislation Committee brought forth some discussion as to the proper method of dealing with violators of the law.

Drs. T. E. Smith and T. B. Rogers, of the State Board of Examiners, spoke for the Board, and requested that cases of violation of the law be reported to them whenever the evidence was of such a character as to warrant prosecution.

The special committee appointed to investigate delinquents reported that letters had been sent to or personal calls had been made upon such members, and that in some cases no reply had been received from courteous communications; that in some other cases, where a personal visit was made, members of the committee had been treated in a discourteous and insulting manner. It was recommended that eleven names be dropped from the Association membership.

The vote of the Association to act in accordance with the recommendation of the committee was a unanimous one.

The following delegates reported:

Dr. T. Earle Budd for the delegation to the Atlantic City Horse Show.

Drs. Smith and Glennon, delegates to the recent meeting of the American Veterinary Medical Association at Minneapolis.

Dr. L. P. Hurley, delegate to the Pennsylvania Veterinary Medical Association, and Dr. S. S. Treadwell, to the New York State Association.

At this time, under the regular order of business, occurred the election of officers for the ensuing two years. The following were unanimously chosen by ballot:

President, Dr. William Herbert Lowe, Paterson; First Vice-President, Dr. T. B. Rogers, Woodbury; Second Vice-President, Dr. H. Vander Roest, Newark; Secretary, Dr. George W. Pope, Athenia; Treasurer, Dr. James M. Mecray, Maple Shade.

It was voted that $50 per annum be devoted to the Secretary's use for employing a stenographer and typewriter.

Following the election of officers, the President made his annual address. It is probable that this address will be published in the near future, so but passing mention will be made of the chief suggestions, which were:

1. The appointment of a conference committee to confer with State officials, visit State agricultural and experiment stations, etc.
2. The establishment of a State veterinary library.
3. A two days' session of the Association.
4. The establishment of a bureau with a State veterinarian in charge, said bureau to be to the State what the Bureau of Animal Industry is to the country at large.

Following the President's address the following visitors were introduced:

Dr. E. B. Voorhees, President of the State Board of Agriculture; Hon. Franklin Dye, Secretary of the State Board of Agriculture; Hon. S. B. Kitcham, of the State Tuberculosis Commission; Dr. Veranus A. Moore, of Ithaca, N. Y.; Drs. Bell, Berns and Ackerman, of Brooklyn; Robertson, Ellis, and Dixon, of New York; Pearson and Hoskins, of Philadelphia.

Dr. Voorhees highly commended the suggestions embodied in the President's address, and explained the need of some one division of the State government to which animal industry matters could be referred. At the present time there is existing the State Board of Agriculture, the Tuberculosis Commission, and the Dairy Commission, to which bodies communications and requests are frequently sent indiscriminately, thus necessitating delay and question as to the extent of authority of these several divisions of the public service.

Hon. Franklin Dye, Secretary of the State Board of Agriculture, also addressed the meeting and invited the Association to apply for membership in the State Board of Agriculture.

It was voted to make such application, and if received, empower the President to appoint the two delegates allowable to the Association as members.

At 1 P.M. the meeting adjourned for dinner, reconvening at 2.30.

Under new business, Dr. H. Vander Roest stated that the Essex County Board of Health would without doubt in the near future appoint a meat-inspector, and it was voted that the Secretary be authorized to communicate with the Board and respectfully request that in case such an appointment was made, the office be filled by a qualified veterinarian.

It was also voted that a conference committee be appointed with power to carry out the suggestions incorporated in Dr. Lowe's address. The literary feature of the meeting was a paper presented by Dr. Veranus A. Moore, of Cornell University. The paper was entitled " Etiology and Prevention of Infectious Diseases of Animals."

Following the reading of the paper, Dr. Moore, with the aid of lantern slides, gave a fine demonstration of various forms of bacteria. It would not be possible to reproduce Dr. Moore's extemporaneous remarks while the stereopticon was in operation, but suffice it to say that he held the attention of his hearers from first to last. Dr. Moore's capital paper will, without doubt, appear in the columns of our veterinary magazines.

Dr. T. B. Rogers, of the State Board of Examiners, read a paper, entitled "The Relation of the State Boards of Examiners to the Teaching Schools, the Profession and the State." Dr. Rogers' paper elicited a discussion, in which Drs. Robertson, Hoskins, Berns, Pearson, Ackerman, Bell, and others participated.

Dr. Pearson made a brief report of his experiments in immunizing animals against tuberculosis.

It was voted to hold the semi-annual meeting in July, 1903, with the Secretary at Athenia.

President William Herbert Lowe announced the appointment of committees and delegates as follows:

Executive Committee.

Dr. T. Earle Budd, *Chairman*, Orange; Dr. J. O. George, Camden; Dr. E. L. Loblein, New Brunswick; Dr. J. B. Hopper, Ridgewood, and Dr. L. P. Hurley, Hopewell.

Public Health Committee.

Dr. Werner Runge, *Chairman*, Newark; Dr. J. V. Laddey, Arlington; Dr. Thomas H. Ripley, Newark; Dr. Edwin Rowe, Jr., Summit, and Dr. W. F. Harrison, Bloomfield.

Animal Industry Committee.

Dr. J. Payne Lowe, *Chairman*, Passaic; Dr. D. J. Dixon, Hoboken; Dr. J. B. Finch, Ramseys; Dr. James McDonough, Montclair, and Dr. W. J. Fredericks, Delawanna.

Legislation Committee.

Dr. William Herbert Lowe, *Chairman*, Paterson; Dr. Henry Vander Roest, Newark; Dr. Charles T. Magill, Haddonfield; Dr. T. E. Smith, Jersey City; Dr. Whitfield Gray, Newton, and Dr. R. T. Churchill, Secaucus.

Finance Committee.

Dr. James T. Glennon, *Chairman*, Newark; Dr. Wm. Gall, Matawan, and Dr. J. H. Conover, Flemington.

Publication Committee.

Dr. J. O. George, *Chairman*, Camden; Dr. E. Matthews, Jersey City, and Dr. R. O. Hasbrouck, Passaic.

Press Committee.

Dr. T. Earle Budd, *Chairman*, Orange; Dr. William Dimond, Newark, and Dr. T. B. Rogers, Woodbury.

Conference Committee.

Dr. William Herbert Lowe, *Chairman*, Paterson; Dr. T. B. Rogers, Woodbury, and Dr. James H. Mecray, Maple Shade.

Committee on Arrangements (Athenia Meeting).

Dr. George W. Pope, *Chairman*, Athenia; Dr. J. Payne Lowe, Passaic, and Dr. Werner Runge, Newark.

Representatives on the State Board of Agriculture.

Dr. George W. Pope, Athenia, and Dr. George F. Harker, Trenton.

Delegates to the New York State Veterinary Medical Society.

Dr. R. F. Meiners, Rutherford; Dr. S. S. Treadwell, Englewood; Dr. George E. Fetter, Hopewell; Dr. J. M. Everett, Hackettstown, and Dr. William Gall, Matawan.

Delegates to the Pennsylvania State Veterinary Medical Association.

Dr. George C. Forsyth, Columbus; Dr. H. R. Clark, Long Branch; Dr. Vernon B. Height, Asbury Park; Dr. G. Walter Dilkes, Mullica Hill, and Dr. H. W. Read, Freehold.

Delegates to the New Jersey Sanitary Association.

Dr. J. V. Laddey, Arlington; Dr. Edwin Rowe, Jr., Summit, and Dr. L. E. Tuttle, Bernardsville.

Delegates to the American Veterinary Medical Association.

Dr. T. E. Smith, Jersey City; Dr. John P. Matthews, Princeton; Dr. R. J. Halliday, Bayonne; Dr. E. A. Hogan, Newark; Dr. James Mosedale, Morristown.

Delegates to the Atlantic City Horse Show.

Dr. T. Earle Budd, Orange; Dr. J. B. Jones, Atlantic City; Dr. William P. Fink, Atlantic City.

GEORGE W. POPE,
Secretary.

ALLEGHENY COUNTY VETERINARY MEDICAL ASSOCIATION.

Vice-President Rectenwald presided over a large and enthusiastic meeting, held at the office of Dr. J. E. Spindler, on the evening of January 28th.

Members present: Drs. Ainsworth, Boyd, Gearhart, Gilmore, McNeil, Rectenwald, Richards, Spindler, Spohn, Taylor, Waugh. Visitors: Drs. Bittles and Porter, of New Castle; Hoskins, of Philadelphia; Laberge, of Beaver Falls; Jones, of Pittsburg; Magee, of Uniontown; Prothero, of Johnstown; W. J. Waugh, of Washington, and Weitzel, of Allegheny, Pa.

Dr. George Magee read a well-prepared paper on "Animal Life in the Coal Mines," especially those stabled in shaft coal mines. Discussion by Drs. Rectenwald, McNeil, W. J. Waugh, Weitzel, Laberge, and J. A. Waugh.

Dr. W. B. Prothero reported an operation in trifacial neurectomy, followed by much swelling and irritation of the lips and lower part of the head, which did not yield readily to treatment, but appeared to abate or recover spontaneously on the fourth day after the operation. This is the Prof. W. L. Williams' operation for involuntary head-shaking, and proved successful; and the patient remained under observation about fifteen months. This subject proved so interesting that many questions were asked and answered, and nearly everyone present took part in the discussion.

Dr. C. Z. Laberge reported having treated twenty-eight cases of tetanus in horses with Mulford's antitoxin, and having lost no cases since using it. This is a remarkable clinical experience, illustrating the value of serum treatment.

Dr. N. Rectenwald made some practical remarks on obstetrics and modern surgery; exhibited his obstetric outfit, and showed some recently perfected instruments.

Dr. D. C. Gearhart made a stirring address on the prosecution of illegal practitioners, and incidentally made some strenuous remarks on our duties to ourselves and fellow-practitioners, with charity toward the poor, and prompt collection of fair-sized bills from the rich. Friendly discussion prevailed.

Dr. W. Horace Hoskins made one of his characteristic addresses on the "Practitioner, the Public, and the Veterinary Profession in Their Various Relations."

A spirit of good-fellowship and conversation prevailed, and the Association was reorganized, enlarged, and will be perfected at a special meeting on February 11th.

JAMES A. WAUGH, V.S.,
Secretary.

THE ILLINOIS VETERINARY MEDICAL AND SURGICAL ASSOCIATION.

THIS Association met in annual session at the St. Nicholas Hotel, Decatur, Ill., January 14, 15, 1903. The meeting was called to order by President Dr. V. G. Hunt, of Arcola, Ill. Following the roll-call, which was responded to by a goodly number of the membership, President Hunt delivered an exceedingly interesting and very instructive address, which was warmly applauded, and was as follows:

Gentlemen: As we meet to-day, we may well rejoice at the rapid strides made by the profession within the past few years. The profession no longer pins its faith to theories that cannot be demonstrated. Nothing but absolute fact will satisfy. Every veterinarian is doing some original thinking, and does not rush into print with a new discovery until it has been demonstrated to be practical. Drugs have become so cheap that the veterinarian can give our domestic animals the benefit of all the new and best remedies with comparatively small cost. What an advantage the young man of to-day has over the old practitioner who gained his knowledge thirty years ago! While he was in practice he had to be a diligent student to keep up with the times. Necessity kept him on the alert, but to-day the novice has his text-books, his lectures, and, last but not least, his veterinary journal, and if Dame Nature has been liberal with brains he will make a success.

We see by our dailies that in the East that terrible foot-and-mouth disease has invaded their territory. The veterinarians are already on the ground, and we trust will stamp it out. The utmost precaution will always be necessary from the fact that, to improve our flocks and herds, importations from the infected districts must be made in spite of the danger. The veterinarian must be on the alert; not to pose as an alarmist, but, where the symptoms are imperfectly developed, use every precaution to insure the safety of the herd, even if his worst fears were never realized. The veterinarian of to-day has diseases to contend with that were little known thirty years ago, some of which are of such a malignant character that they must be met in their incipiency or a fearful loss will be the result. Most liberal appropriations will have to be made to meet the necessary expense. Conditions are constantly changing that will require nice diplomacy to not inflict a hardship on unfortunate owners in infected districts. Then the veterinarian with practical experience, coupled with a clear head, will do his duty without fear, favor or affection.

All Europe is watching our live-stock interests with a jealous eye, and will look with no degree of composure, which will require us to be alive to our individual interests. Our exports to other climes are immense. We can hardly conjecture what they will be within the next decade. Let us hope we may meet every emergency, so American interests will be subserved.

Our late veterinary law without doubt has not met the expectations of its authors, unless the fee was the focus of their thoughts and the height of their ambition. Be this as it may, in many localities quackery is as prevalent as ever. Let us hope in the near future the stock-owner himself, unaided by State legislation, will give each practitioner his proper place. Individual interest is a wonderful safeguard. True merit will eventually win. Glittering theories are very inspiring, but avail little in the sick stall. Here is where the true veterinarian shows his skill. We trust our beloved profession in the near future will reach such perfection that our domestic animals will be treated on the same intelligent basis as their lordly master. We owe this to that all-wise Creator who placed them in our care.

When sick do not fly to some therapeutic arsenal for a remedy without any thought as to their ailments. Is it to be wondered at if he loses his valuable animal under these circumstances? Is it any wonder the public becomes disgusted at the impotency of the healing art? One writer has truly said, "Medicine in incompetent hands is like a sword in the hands of a madman."

The world is full of vain pretenders with a hemorrhage of words, gaudily dressed, and, for a time, capable of deceiving the very elect. This forcibly reminds us of a $40 bill on a $20 horse; but all they have to do is to move a little farther along and catch another sucker. Thus it has been and will be to the end of time.

The conscientious veterinarian realizes his ability, and never dreams of trickery; is strictly honest with his patrons, and enjoys their well-merited confidence.

Now, in conclusion, let me most heartily thank you for your most valuable help while President of your Society, and in retiring will hold every member in grateful remembrance, hoping their usefulness will increase with their years, hoping and trusting my successor will receive the same valuable support so generously extended to me. May the Society be inspired with new life by a younger man. Our Society has a world-wide reputation, capable of doing much good, located in one of the richest agricultural districts on the globe. Its inhabitants represent every civilized country on earth, and the very best of them. Need we fail under such circumstances?

The minutes of the previous meeting were then read and approved by the Association.

The election of officers for the ensuing year followed, and resulted as follows: President, Dr. V. G. Hunt, Arcola, Ill.; Vice-Presidents, Dr. A. Travis, Litchfield, Ill., and Dr. F. D. Bliss, Earlville, Ill.; Secretary, Dr. W. A. Swain, Mt. Pulaski, Ill.; Treasurer, Dr. J. M. Reed, Mattoon, Ill.

Three new members—Dr. H. P. McKinney, Neoga, Ill.; Dr. C. F. Griffin, Newman, Ill., and Dr. F. D. Bliss, Earlville, Ill.—were duly elected after passing the requisite examination, and were introduced to the members by the Secretary.

STANDING COMMITTEES APPOINTED BY THE PRESIDENT:

Committee on Membership—Drs. S. H. Swain, J. M. Reed, A. Travis, C. A. Hurlbutt, and W. C. Dawson.

Committee on Program—Drs. V. G. Hunt, W. A. Swain, and S. H. Swain.

Committee on Arrangements—Drs. V. G. Hunt and F. Glassbrenner.

Committee on Legislation—Drs. John Osborne, V. G. Hunt, S. H. Swain, and C. A. Hurlbutt.

The following papers were read: "Retained Fœtal Envelopes," by Dr. J. M. Reed, of Mattoon, Ill., which was very instructive and interesting, and was responded to by Drs. V. G. Hunt and S. H. Swain. "Œsophageal Obstruction," by Dr. C. A. Hurlbutt, of Stonington, Ill., was treated in a most creditable manner. "Persistency of the Urachus" being next on the program, Dr. S. H. Swain, of Decatur, Ill., read a very concise and instructive paper on the same, which was responded to by Drs. J. W. Marsh and C. A. Hurlbutt. Dr. John Osborne next read a most entertaining paper on the subject of "Vegetable Poisoning Milk Sickness," which was responded to by Dr. V. G. Hunt and others. The subject of "Parasitic Bronchitis" was next treated by Dr. J. W. Marsh, of Illiopolis, Ill., in a very interesting and instructive manner. He was responded to by Drs. S. H. Swain and F. J. Bliss.

Under the head of "Report of Cases," Dr. A. Travis, of Litchfield, Ill., read a report of an operation for "Scrotal Hernia," which was well received and discussed at length.

Dr. W. A. Swain, of Mt. Pulaski, Ill., reported a case of "Fungosis Toxicum Paralyticus" in his practice which was of more than passing interest, and brought forth some animated discussion. "Cerebro-spinal Meningitis," by Dr. V. G. Hunt, and many other extremely interesting subjects were discussed.

Among the visitors present were Drs. Ansell Gould, Bone Gap, Ill.; J. B. Edgar, Ivesdale, Ill.; A. Robertson, Mt. Carmel, Ill.; John Turrell, Mackinaw, Ill.; Charles E. Howard, Lebanon, Ill.; P. L. Stombaugh, Altamont, Ill., and W. Smith, Tinley, Ill.

The date and place of the next meeting was fixed for August 12 and 13, 1903, at Decatur, Ill.

Meeting adjourned until the above date. DR. W. A. SWAIN,
Secretary.

PERSONALS.

Dr. James Mosedale, member of the Royal College of Veterinary Surgeons, and located at Morristown, N. J., has a special department for canines and felines in his veterinary hospital.

Dr. A. I. Telmosse, of St. Andre Avellin, has removed to Hull, in the Province of Quebec, Canada.

Dr. J. T. Jones, of Atlantic City, N. J., takes a special interest in canine practice in the city by the sea.

Dr. W. H. Ridge, of Trevose, Pa., in rebuilding his home, has added a commodious office for the reception of his clientele.

Dr. W. E. A. Wyman, of Portland, Michigan, has gone to Mastin, Kansas, for a time.

Dr. I. K. Deckard, of Middletown, Pa., illustrates his stationery with an exhibition of his "Veterinary Antistitch Adhesive Plaster."

Dr. M. O'M. Knott, of Plainfield, N. J., holds the post of club veterinarian to the Union Hunt Club, of Elizabeth, N. J.

Leonard Pearson Ridge is the name of the youngest son of Dr. Wm. H. Ridge, of Trevose, Pa.

Dr. H. D. Gill, of New York, was the purchaser of a fast pacer at the Fasig-Tipton sale in New York early in December.

Dr. S. Brenton and wife, of Detroit, Michigan, were Chicago visitors in December, and the guests of Dr. A. H. Baker during a part of their stay.

Dr. Hamlet Moore, formerly of Lexington, Kentucky, has located at Danville, Kentucky.

Dr. L. N. Reefer, of Wheeling, West Virginia, is an active member of the "Elks" organization.

Dr. Leonard Pearson, of Philadelphia, State Veterinarian, was in attendance at the meeting of agriculturists in Huntington County the latter part of December.

The JOURNAL begs to acknowledge with its appreciation the New Year greeting cards from Drs. Duncan McEachran, of Montreal, and Leonard Pearson, of Philadelphia.

Dr. M. E. Knowles, of Helena, Montana, spent two weeks in the latter part of November in Indiana, at the bedside of his sick father, whose recovery is now assured.

Dr. Ralph W. Balkam, of Hyde Park, Mass., has located at Canaan, Vermont. Dr. Balkam is a graduate of the Veterinary Department of Howard University.

Dr. B. E. Nevel, of Dover, N. J., spent several days in Philadelphia in December.

Dr. Alexander Glass, of Philadelphia, Pa., the yachtsman of the profession, spends his spare hours in fitting up his craft preparatory to going into service the coming season.

Drs. C. J. Marshall, of Philadelphia, and O. M. Norton, of Coatesville, Pa., were holiday visitors to the JOURNAL office.

Mrs. Dr. A. H. Baker, of Chicago, Ill., won a number of prizes with her cats at the Chicago pet animal show.

Dr. W. E. A. Wyman, of Portland, Michigan, was a visitor to Kansas in the month of December, doing some immunizing work among swine.

Dr. W. Horace Hoskins, of Philadelphia, spent a couple of days in December in central Virginia.

Fred. Foster, M.R.C.V.S., has been transferred from the cavalry to the artillery service in the United States Army, and is now stationed at Fort Ethan Allen, Vermont.

Dr. B. E. Nevel, of Dover, N. J., having successfully passed the State Board of Veterinary Medical Examiners in Pennsylvania, contemplates returning to his native heath, hopeful of better health than he has enjoyed in New Jersey.

Dr. S. B. Parshal, of Canfield, Ohio, offers his services as a live-stock auctioneer in a neat ad. in *The National Stockman and Farmer*, of Pittsburg, Pa.

Dr. W. V. Lusk, Veterinarian 2d Cavalry, U. S. A., is visiting his mother at Ashtabula, Ohio, where his father recently died.

Dr. M. E. Conard, of West Grove, Pa., is seriously being considered as a suitable person for filling the rôle of Secretary of Agriculture under the new administration.

Dr. J. G. Rutherford, Chief Veterinary Inspector for Canada, issued, early in January, *Bulletin No.* 9, relative to foot-and-mouth disease.

Dr. E. L. Fryer, of Blakely, Georgia, in conjunction with his practice, conducts a livery stable and deals in all stable equipments.

Dr. Leonard Pearson, State Veterinarian of Pennsylvania, was present at the inaugural ceremonies installing Hon. Samuel W. Pennypacker, Governor of Pennsylvania.

Dr. H. W. McMillen, of Brookville, Ohio, is Health Officer to that village.

Dr. D. F. Bowersox, of Aaronsburg, Pa., was attacked with pneumonia in January.

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FOOT-AND-MOUTH DISEASE IN MASSACHUSETTS.

BY AUSTIN PETERS, M.R.C.V.S.,
CHIEF OF CATTLE BUREAU OF MASSACHUSETTS STATE BOARD OF AGRICULTURE.

THE most unexpected occurrence for the year, and one that has made a great deal of work in a short space of time, has been the outbreak of foot-and-mouth disease.

Foot-and-mouth disease is well-known on the continent of Europe, and has also caused great ravages among the live-stock in England. In the last few years, however, it has been practically eradicated from England, several years having passed without an outbreak in that country, until a year or so ago, when it was introduced again in some way from the continent; but the damage caused by its last introduction has been limited. In European countries, however, it is a source of great loss to the farmers.

In Germany it is known as *Maul und Klauenseuche;* in France, as *fievre aphtheuse;* in Italy it is known as *afta epizootica*, and in England, besides being spoken of as foot-and-mouth disease, it is also known as epizoötic aphtha.

It is a disease peculiar to cloven-footed domestic animals—the ox, sheep, goat and swine; but very rarely may be communicated by them to the horse, dog and cat; and it is said even occasionally to infect poultry, and also man. It occurs also among wild ruminants, such as deer, buffalo, camel, giraffe, and antelope.

The disease is characterized by vesicular eruption on the mucous membrane of the mouth and surface and edges of the tongue; it also appears in the interdigital space, and around the top of the foot at the juncture of the hair and horn. The vesicles break, leaving superficial ulcers.

The disease is accompanied in the early stages by fever, which is particularly high just before the eruption of the vesicles appears. It is highly infectious, being disseminated, not only by the cohabitation of sick with healthy animals, but also by manure, litter, stable utensils, clothing and boots of attendants and veterinary surgeons, and also by cattle cars. Even driving healthy cattle over roads previously traversed by cattle suffering from the disease may be sufficient to produce it in the susceptible animals.

Milch cows suffering from foot-and-mouth disease also have a vesicular eruption upon the udder and teats, and in such cases the milk becomes a medium of infection. After two or three days the epithelium, which is raised by the vesicles on the udder or teat, peels off. It may peel so as to leave the entire teat raw, making it difficult to milk the animal and also leading to an extension of the inflammation to the inside of the teat and to the udder, ruining one or more quarters. This complication seems to have been quite frequent during the recent outbreak.

The foot-and-mouth disease has undoubtedly existed for centuries, probably for the last two thousand years. It seems to be a native of Western Asia and Eastern Europe, and has long been known in India and upon the steppes of Russia. As commerce between civilized nations increased and means of communication developed, it spread over Europe from the east to the west, until now it prevails from the Caspian Sea to the Atlantic Ocean. It also exists in India, Ceylon, Burmah, and the Straits Settlements. With the development of literature its description became more accurate, and accounts of its spread over Europe in the seventeenth and eighteenth centuries, show it to have prevailed extensively in Italy, Germany and France. Toward the end of the eighteenth and early in the nineteenth century it reached Western Europe, but did not gain access into England until 1839, and was not known in Denmark until 1841.

Foot-and-mouth disease seems to be a native of localities in Eastern Europe or Western Asia, and an exotic in some other countries. For example, it was imported into Canada in 1870, being introduced by two Shorthorn cows brought from Liverpool, and appeared in localities in New York State and some of the New England States; but it does not seem to have assumed a severe form, and in a few months entirely disappeared. Its behavior in thus disappearing may be partly due to its having been introduced in the autumn, and as cattle in the North are housed during the winter months, there is very little communication between herds; but it may also in part be due to its exotic character. The last outbreak in the United States was in the early eighties (about 1884), when some cattle imported from England were landed at Portland, Me., and driven to the United States quarantine station a short distance away. Soon after a yoke of oxen was driven over the same road, which later developed foot-and-mouth disease—the imported cattle having it when landed—and gave it to the owner's herd; but the disease was soon suppressed, and there has been no reappearance of it until the past autumn.

The United States Bureau of Animal Industry of the Department of Agriculture spares no pains to protect the live-stock interests of the country from contagious animal diseases; hence it is unlikely that this malady will ever secure a foothold here, owing to the stringent quarantine regulations imposed by the Federal Government. Cattle, sheep, other ruminants and swine can be brought into the United States only at points designated by the Department of Agriculture, the ports of entry on the Atlantic seaboard being only at Boston, New York and Baltimore, near which places quarantine stations have been established. All neat cattle are held at these stations for ninety days, and all sheep and swine for fifteen days after landing. The reason for holding cattle longer is to guard against contagious pleuropneumonia; the period for which the sheep and swine are held is sufficient to guard against all danger from foot-and-mouth disease. Neat cattle also have to be found free from tuberculosis as determined by the tuberculin test before being allowed to go beyond the quarantine station limits. Separate gates and lanes are provided for entrance and exit; if, therefore, any contagious disease should make its appearance, there would be no danger of healthy animals becoming infected by being driven over roads where sick animals had previously been.

Importers of animals from England and Europe must also obtain permits from the Department of Agriculture, and, furthermore, must have affidavits that animals come from localities free from contagious disease, and do not pass through infected districts in transit. The collector of the port of entry is notified when the animals arrive, and immediately turns them over to the care of the agent of the Bureau of Animal Industry having charge of the quarantine station.

In countries where foot-and-mouth disease has prevailed as an epizootic, the losses occasioned by it have been very great to the farmer from a pecuniary standpoint; not that the mortality is very large, as only from 1 to 3 per cent. of the infected animals die, but owing to the emaciation due to the fever, and the inability to walk about and eat. This loss is especially heavy when cattle or sheep are being fed for the shambles. Animals nearly ready for the butcher, in a few days lose all the flesh that has taken them months to put on.

Neat cattle have the severest lesions in the mouth, as a rule, and have great difficulty in eating, although lameness may also be present; while among sheep the foot lesions are usually the more severe and they will not walk about in search of food, but spend most of their time lying down.

The period of development from the time of exposure is short, usually from three to eight days; but it may not appear in rare instances, it is said, for from two to three weeks after exposure.

When there are no complications, such as sloughing of the feet as seen in very severe cases, the disease in cattle, sheep, and swine runs a course of from ten to twenty days.

In other animals the symptoms are somewhat the same, viz., vesicles followed by ulcerations either on the feet or in the mouth; but other domestic animals do not seem to be very susceptible. The horse shows lesions in the mouth, but only as a result of licking infected cattle or drinking or eating from buckets or troughs which diseased creatures have used. Dogs, cats and rabbits may have the disease, but it is said to be infrequent, and, in the dog and cat, is the result of their being kept in the stable with infected ruminants or swine, or of their drinking milk from cows with udder lesions.

Foot-and-mouth disease may occur in the human family. Among adults, attendants of cattle, veterinary surgeons, butchers and drovers are most exposed. It may be acquired from diseased animals, and occasionally it is possible for one person to infect another. Among infants it may be caused by drinking uncooked milk from cows having the vesicles of epizoötic aphtha on the udder; it is also said that fresh butter, fresh cheese and whey can convey the germs of the disease,

The period of incubation is quite short, especially when conveyed by milk, in which case it is only from twelve to twenty-four hours before symptoms appear.

In infants the disease is not infrequently fatal. The symptoms consist of fever, headache or dizziness, conjunctivitis, an eruption on the face or around the mouth, and vesicles in the mouth, and among milkers there may be sores on the tips of the fingers around the finger nails (there may even be sloughing of the nails), or in the spaces between the fingers. When vesicles develop in the pharynx they cause great difficulty in swallowing; there may also be vomiting and diarrhœa when the infection takes place through milk, and in the case of infants and small children the disease may then end in death. Recovery usually takes place in ten or twelve days. Among animals it is said that one attack secures only temporary immunity from another. Meat from animals suffering with epizoötic aphtha has never been found to be infectious.

Etiology. Foot-and-mouth disease is undoubtedly a germ disease —both clinical and experimental evidence indicate this—but the specific organism which produces it remains to be discovered. There are other diseases which we believe to be due to a microscopic organism of some description—such, for example, as rabies, smallpox, and cowpox—in which the organism is so minute or so difficult to stain or cultivate that it has hitherto not been demonstrated, and the bacterium of epizoötic aphtha is unquestionably one of this character. Nosotti, Klein, Schottelius and Kurth have studied micro-organisms found in connection with the lesions of foot-and-mouth disease, but it does not seem that the true specific cause has yet been discovered.

The vitality of the virus is not considered to be usually very great. Walley says that as a rule the danger ceases at the end of thirty days after the recovery of the last animal, but instances are given in which troughs, hayracks and stables have caused fresh outbreaks after the lapse of several months. Therefore, in taking steps for the eradication of the disease, through disinfection of stables and utensils, with destruction of all litter and manure, cannot be too strictly enforced.

The post-mortem conditions found in animals suffering from foot-and-mouth disease—in addition to the lesions in the mouth and around the feet, and eruptions on the udder previously mentioned—consist of an inflammation of the stomach and intestines, with perhaps erosions of these organs. Especially is this the case in infants, pigs, and calves infected by the use of milk from diseased cows.

The medicinal care of foot-and-mouth disease consists in treating the symptoms as they occur by the use of antiseptic washes, and by the application of dusting powders to the ulcerations. The food should be soft and of an easily-digested character. Large flocks of sheep, where it is impossible to attend to each individual case, are sometimes treated when the foot lesions predominate by driving the entire flock daily through a long wooden trough containing some antiseptic drying powder.[1]

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[1] A part of the above is taken from an article written by me recently for the "Reference Handbook of the Medical Sciences."

My attention was first called to the possible existence of foot-and-mouth disease in this section on Wednesday, November 12th. Mr. Dennen, the agent of the Cattle Bureau in charge of the stock-yards at Brighton, came to the office after market on that date and informed me that Mr. Henry S. Turner, one of the Rhode Island Cattle Commissioners, who lives at Scituate, R. I., told him that he was afraid that they had foot-and-mouth disease in Rhode Island. He said that the disease was taken down there by a cow that was brought to the Brighton market from Charlton, in Worcester county. She was taken from there to Chelsea, and in two or three weeks from Chelsea back to Brighton, and from Brighton she went with others to Cumberland, R. I., and that the disease had spread to several herds in that locality.

I immediately wrote to Dr. D. E. Salmon, Chief of the Bureau of Animal Industry at Washington, of what I had heard, and told him I would investigate the matter further and report as soon as I could learn more.

An agent of the Cattle Bureau, Dr. A. W. Draper, happened to be in the office at the time Mr. Dennen told me of Mr. Turner's fears. He was going to Wrentham the next day and to North Attleborough the following day, and I told him to find out what he could when he was down next to the Rhode Island line and report to me. From Dr. Draper's reports of what he was able to hear, on Saturday, November 15th, I went to Wrentham, and with the Inspector of Animals, Dr. Elisha Brastow, drove to Cumberland Hill and saw a herd of cattle owned by H. H. Sprague. Mr. Sprague informed me that the disease was first brought to his place about the first of October by three cows that came from a neighbor to be slaughtered. This neighbor was the man who originally had the diseased cow which came from Brighton. In about ten days after the animals were sent to Mr. Sprague's his herd of thirty-three cattle developed foot-and-mouth disease. He also had five pigs which he told me had it. The animals had evidently had it very severely, as it was a month after the first appearance of the disease when I first saw them, and they had not all fully recovered then. I was not positive as to its being foot-and-mouth disease, and asked where I could see some fresh cases. Mr. Sprague told me of a place in Smithfield, R. I., where the animals had just become infected, and I went home with the intention of going to Smithfield Monday, November 17th; but after my arrival home I was called up by Dr. Edward Knobel, Inspector of Animals in Dedham, who asked me if we had foot-and-mouth disease in this country. I told him that we were not supposed to, as the United States was thought to be free of it; but as he was about leaving the telephone I asked him his reason for asking the question. He said, if we did he thought we had it in a herd of cattle in Dedham. I told him that stranger things had happened, and I would come out there the next day. I drove to Dedham Sunday afternoon, November 16th, accompanied by Dr. Theobald Smith, Professor of Comparative Pathology at Harvard University, whom I invited to go with me. We went to Mr. John K. Burgess' place in Dedham, where we found thirty-eight cows and a bull, all of which had been sick for about a week. The history there was that about three weeks before he bought a cow from a Brighton dealer and kept her about a week. He did not like her because she did not eat well and was lame, and returned her to the dealer. In about ten days after returning this cow his cattle were all taken sick. Driving home, I asked Dr. Smith what his opinion was, and he said that if it was not foot-and-mouth disease he did not see what else it could be, and after discussing the matter we decided that it was my duty to telegraph Dr. Salmon at Washington at once. I accordingly telegraphed Dr. Salmon on the evening of November 16th, saying: "I believe we have foot-and-mouth disease in Rhode Island and Massachusetts. Come at once or send representative." The result of the telegram was the appearance, November 19th, of Dr. John R. Mohler, one of Dr. Salmon's agents. By that time I began to hear of other herds, and was able to show Dr. Mohler cases in Sharon. Dr. Mohler's reports were evidently disquieting enough to lead to other experts being sent to confirm my diagnosis. On November 25th Dr. Leonard Pearson, State Veterinarian of Pennsylvania, and Dean of the Veterinary Department of the University of Pennsylvania, appeared, and the following day, November 26th, Professor James Law, of Cornell University, Ithaca, N. Y., arrived as special agent of the United States Bureau of Animal Industry. They saw cases in Dedham, Needham, Chelsea, Revere, Everett, and Concord, and were satisfied that the trouble was foot-and-mouth disease. Dr. Salmon came to Boston Tuesday, December 2d, as the result of their confirmation of the diagnosis, and since then the State and Federal authorities have been working in co-operation.

At a conference between the Governor of Massachusetts and the Chief of the Bureau of Animal Industry of the United States, Department of Agriculture, and the Chief of the Cattle Bureau of the Massachusetts State Board of Agriculture, at the State House, December 4th, it was agreed that if the United States Department of Agriculture would pay 70 per cent. of the value of animals that were killed because they were infected with foot-and-mouth disease, or had been exposed to it, the appraisal to be based on what the animals were worth when in a state of health, and made by an expert in the values of cattle, who was also to be a citizen of Massachusetts, the State would authorize the slaughter of infected or exposed animals where the public good required it.

On December 5th, therefore, at a meeting of the Governor and Council, the following resolutions and order were adopted:

COMMONWEALTH OF MASSACHUSETTS,
COUNCIL CHAMBER,
December 5, 1902.

WHEREAS, The foot-and-mouth disease, declared to be a contagious disease by the laws of this Commonwealth, exists to an alarming degree among the cattle, sheep, and swine of the Commonwealth; and

WHEREAS, In the opinion of the Chief of the Cattle Bureau of the State Board of Agriculture the public good requires the destruction of certain cattle, sheep, and swine which have been exposed to said contagious disease; and

WHEREAS, The Chief of the Bureau of Animal Industry of the United States Department of Agriculture, by authority of the Secretary of Agriculture, has agreed to reimburse the owners of animals destroyed in accordance with law by payment to the owners of 70 per cent. of the appraised value of such animals, such appraisal to be made by an expert in the value of cattle, who shall be a citizen of the Commonwealth and appointed by said Chief of the United States Bureau of Animal Industry, and to be based upon the value of such animals when in a state of health;

Now, therefore, it is hereby ordered that the following order of the Chief of the Cattle Bureau of the State Board of Agriculture be approved.

Adopted in Council, December 5, 1902.

E. F. HAMLIN,
Executive Secretary.

BOSTON, December 5, 1902.

To all Persons Whom it May Concern:

By virtue of the power and authority vested by law in the Cattle Bureau of the State Board of Agriculture under the provisions of Chapter 90 of the Revised Laws and Chapter 116 of the acts of 1902, you are hereby notified that foot-and-mouth disease, which is a contagious disease and is so recognized by the laws of this Commonwealth, exists among cattle, sheep, and swine in some sections of this State.

You are hereby further notified that in order to prevent the spread of this disease this bureau has issued the following order:

It is hereby ordered that all cattle, sheep, or swine which have foot-and-mouth disease, or which have been exposed to it, shall be killed in those cases where, in the opinion of the Chief of the Cattle Bureau, the public interests require it.

This order shall take effect upon its approval by the Governor and Council.

Approved in Council, December 5, 1902.

AUSTIN PETERS,
Chief of Cattle Bureau.

E. F. HAMLIN,
Executive Secretary.

Agents of the United States Bureau of Animal Industry were appointed as agents of the Cattle Bureau of the Massachusetts State Board of Agriculture in order to give them the necessary authority to carry out measures required for stamping out the disease.

The slaughter of diseased and exposed animals for stamping out foot-and-mouth disease is an unusually radical way of dealing with this malady, and the only excuse for it is on account of the financial and commercial interests involved. The United States Secretary of Agriculture issued an order December 27th forbidding the export of cattle, sheep and other ruminants or swine from the port of Boston until further orders. As large numbers of cattle and sheep were shipped from this port, the loss to the railroad and steamship companies has been very heavy. It is estimated that it has cost Boston $100,000 a day in loss of business; furthermore, the presence of the disease in New England is a menace to the live-stock interests of the country in case it should spread to other States, and for this reason more vigorous measures have been adopted for its eradication than would otherwise be warranted.

It is not usually a fatal disease. Very many animals recover and are restored to their original value. If the premises where the diseased animals are can be kept under quarantine until the last case recovers, and the buildings and materials contained in them have been thoroughly disinfected, that usually seems to be sufficient to stay the ravages of this plague; but in order to expedite matters for the sake of allowing New England ports to be opened for the export of animals again, and for the purpose of being able to declare this country free of foot-and-mouth disease in order that Great

Britain will allow our animals to be landed at her wharves again, these very radical steps have been taken.

The United States Bureau of Animal Industry disinfects premises where animals are killed, and where they have recovered and the United States has not yet decided to kill them, the Cattle Bureau of the State Board of Agriculture disinfects the premises.

Immediately upon ascertaining the presence of foot-and-mouth disease in the community, the following letter was sent to every inspector of animals in Massachusetts:

COMMONWEALTH OF MASSACHUSETTS,
CATTLE BUREAU OF THE STATE BOARD OF AGRICULTURE,
ROOM 138, STATE HOUSE,
BOSTON, November 17, 1902.

To the Inspector of Animals:

DEAR SIR: A disease similar to foot-and-mouth disease has been lately called to my attention; in fact, the symptoms are so much like those of foot-and-mouth disease I think it will very likely turn out to be that malady. The cattle are first noticed to drool, then have blisters appearing in the mouth or on the tongue, which later break, forming little ulcerating sores. They do not eat well while their mouths are sore. They also have blisters appearing around the feet, especially in the space between the two divisions of the hoof, and in some instances blisters appear on the udder, which afterward break and form raw sores on the udders or teats.

The disease may also be communicated to sheep and swine. I wish, if you meet any cases of this kind, you would quarantine the cattle, sheep, or swine that have the disease or that have been exposed to it, forbidding the owner to take them off his premises or to drive them across or on the public highway. If his fields have not any public highway between the barn and the lots he wishes to turn them into, he can turn them out if he wishes, provided they do not come in contact with his neighbors' cattle; otherwise they are to be kept in the stable.

When you quarantine any such animals you can call the disease on your quarantine notice "foot-and-mouth disease," giving the owner the original copy of quarantine notice and sending duplicate here. As this trouble may prove to be serious and important, I wish you to give it your careful attention, and carry out any orders directed to you in connection with it faithfully. It may also be conveyed by the shoes and sometimes by the clothing. I think if you have any herds to deal with where the trouble exists, you had better wear rubbers and an old waterproof coat that can afterward be sponged off with some disinfectant solution before going among other cattle.

Yours truly,

AUSTIN PETERS,
Chief of Cattle Bureau.

In addition to these letters, inspectors of animals in towns adjoining the Rhode Island line had the following letter sent to them in order to stop, as far as possible, the moving of cattle from Rhode Island into Massachusetts:

COMMONWEALTH OF MASSACHUSETTS,
CATTLE BUREAU OF THE STATE BOARD OF AGRICULTURE,
STATE HOUSE.
BOSTON, November 18, 1902.

DEAR SIR: I think that the rules and regulations concerning bringing cattle into Massachusetts have not been observed very well lately, and I wish to call your attention to the fact that persons bringing cattle into Massachusetts must have a permit, and that the cattle must be tested with tuberculin at their expense and risk—except calves under six months old or beeves for immediate slaughter—by a veterinarian satisfactory to me. I recognize the fact that a good many cattle brought in from Rhode Island are cattle that have been sold through the Brighton market, and that as cattle from Brighton, from out of the State, are tested at the Brighton yards, of course no further test is necessary.

I write just now, as I consider this is a particularly important matter, as I am informed that there seems to be a disease among cattle in Cumberland, R. I., which appears to be of a contagious character, the cattle having sore mouths, sore feet, and sores on the udders, and I wish the inspectors of animals in the bordering towns to keep a lookout for cattle coming in from Rhode Island, and if any cattle are brought in from without the State they are to quarantine them and send duplicates to me; or if any cattle present symptoms of sore mouths, sore feet, or have any sores on the udders, they are not only to quarantine them, but to quarantine the herd of the person buying any such animals until I can investigate the matter and see that there is no danger of the spread of the disease.

If you quarantine any cattle, sheep, or swine, you can make the notice of quarantine read "foot-and-mouth disease."

Yours truly,

AUSTIN PETERS,
Chief of Cattle Bureau.

(To be continued.)

OBSERVATIONS ON COUNTRY PRACTICE.[1]

By S. H. Bauman, D.V.S.,
BIRMINGHAM, IOWA.

Having had experience in both city and country practice, it occurred to me that I might be able to give a few items that might be of interest at least to those who have had no experience in country practice, and perhaps be able to point out the large, pleasant, and lucrative field still open to our profession. A little over five years ago, when I left the city, I hardly expected to follow the profession except as a side-line, having decided to make farming and stock-raising my future business. I was of the opinion that in a farming community there would be little or no sickness among stock, owing to the natural surroundings, such as exercise, forage, good care, and experience gained by farmers in handling stock from their youth up, and hardly expected to find anything outside of the simple cases and occasional cases of obstetrics; but, to my surprise, I found the field a large one, with perhaps a greater variety of cases than are found in a city practice. In regard to the side line, inside of a year I had to turn over the management of the farm to other members of the family, my practice wholly occupying my time. I have found the field both pleasant and profitable, and find the farmers take a great deal of interest in the treatment and operations, and, as a class, are exceedingly well posted on disease and treatment in general, much more so than their city cousins. This knowledge results from reading the best farm and stock papers, and reports from the experiment stations and Department of Agriculture. To illustrate: When first I used the Schmidt method in the treatment of parturient apoplexy for quite an old farmer he watched me with interest for some time, then said: "That's new in the United States. I don't see how they got it over here so soon. Why, it's only a short time since Dr. Schmidt was making his experiments in Europe." Asking him how he came to know so much about it, he said he had got it from the Government reports and papers.

The field is a nice one, in that you get good treatment from your patrons. Talk about the cooks and good meals! they make you feel that the best is none too good for the "horse-doctor." It is not the dollar you earn but the dollar you save that counts in the end, and that is what I like in a country practice. Your table is almost wholly supplied from your own garden and farm. The feed for the horses is not a direct outlay, as it is all produced on the farm, and this is quite an item when you run an infirmary. Probably as great a source of profit as any single item is being able to pick up bargains in young stock slightly blemished, requiring time and not much treatment, allowing it to run on the farm and develop. In a country practice a man should be fairly well posted in diseases and treatment of all domesticated animals, as many of your calls are to cattle and sheep. Creameries and the two crops of sheep—*i. e.*, wool and lambs—make money rather plenty in the country, making collections fairly easy and prompt. Conditions have vastly changed from what they were under the old system of farm life, when the whole crop was held and marketed but once a year. In the richer and better farming communities the stores run delivery-wagons, delivering groceries to the farm-home regularly and collecting the farm produce. New houses are being erected everywhere, with furnaces, baths, acetylene lights, and all modern improvements. The tendency is for better schools, and all the towns and villages have a good system of graded schools. It is really hard to find a house that is more than a mile from a rural telephone line, which keeps you in close touch with your patrons and all the towns and villages in the country in which you live. This, with rural mail delivery, makes the country one of the most desirable places to reside. The tendency in all farming communities is for better roads, and already, when the material can be procured cheaper, all bad pieces of roadway are being macadamized. We also have many places in our State where interurban electric lines are being built, while many other lines are being projected, and the farmers are ready to assist in the building of these by granting right of way and voting tax to help pay for their construction. Farmers, as a class, are comfortably fixed, while many are quite wealthy, and, as a rule, are contented. The society is of the best. The young people have their parties, socials, singing-schools, and literary societies at nearly every school-house, while in the towns, which are only five or six miles apart, they have lecture courses, light operas, etc. The older portions of the community have their birthday dinners and other social meetings without number, and all who wish to attend are made welcome and cordially treated.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, Cedar Rapids, Iowa, January 14 and 15, 1903.

The best part of a country practice with a home on a farm is the healthy and moral surroundings of your family, who are inspired by the natural environments to become industrious, rugged citizens, all of them employed pleasantly, and, as a rule, contented. The day of the "clod-hopper" and "old hayseed" is past. The farmers' sons and daughters are, as a rule, graduates of the graded schools, and many of the most successful business and professional men have developed their fine physical constitutions and breadth of brain on the farm. The farmers are waiting anxiously for men of our profession to locate among them, and if we are worthy of their confidence and qualified they will do all in their power to hold us there by giving us their patronage and encouragement. I do not wish you for a moment to think everything is flowing with milk and honey in the country. In certain times of the year roads are very bad. We sometimes have partial failure of crops and many other discouraging things, but, on the whole, I consider it pleasant, profitable, and a wide field to develop.

COMPRESSED AIR IN THE TREATMENT OF ULCERS AND FISTULAS.[1]

By Arnott A. Adamson, M.D.V.,
NEWTON, IOWA.

Compressed air has for some time been used with varied success by physicians of this and other countries, not for its therapeutic value alone, but as a means for the application of the therapeutic agents indicated in the treatment, and for application to delicate and remote tissues that could not be reached by the ordinary methods.

In the arena of the veterinarian the successes of the physicians along these lines can be duplicated, and more. As a means of application of the required therapeutic agents in hospital practice it is convenient and exceedingly valuable in the treatment of fistulas and sinuses of a tortuous nature that will not permit the use of the knife or probe. In the application of the required pressure the medicinal agents used for the cleansing and dressing can be forced to the utmost ramification of the sinus, thoroughly cleansing it without injury to the surrounding tissue.

In the treatment of diseases of the nasal passages and respiratory apparatus it is far superior to fumigation as a means of reaching and relieving the delicate tissues and membranes in those parts that are so sensitive to anything foreign. Another advantage is that the exact amount of dosage is known, and the results arrived at in a much shorter time. Minute ulcers, almost microscopic, on the eyelids can be sprayed thoroughly and effectively, and, to a great advantage, with a spray. So gently is it accomplished that the patient is not discomforted in the least, as the air, when producing a spray, diffuses the force, while in the syringe or dropper the force is concentrated, it matters not how gently we endeavor to use it.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, Cedar Rapids, Iowa, January 14 and 15, 1908.

From an economical standpoint it permits the use of more of the refined and valuable instead of the cheaper and lesser refined drugs and drug preparations, reducing the waste to an absolute minimum.

VITALITY AND IMMUNITY.

BY CARL SCHULIN, M.D.,
BILLINGS, MONT.

(Continued from page 88.)

The neurin bases are derivatives of protagon and the lecithins, which may be found everywhere in the tissues. They are neurin, cholin, betain, muscarin, etc. Neurin has been found in the brains right after death. It is a strong heart poison. Cholin has been found in most glands. It is also a poison, but not so strong as neurin. All the neurin bases can, by oxidation, be changed to less toxic compounds.

Bouchard was the first to investigate the toxicity of the urine. He maintains that a man in about fifty hours excretes through the kidneys a quantity of poison sufficiently large to kill himself with. There are all kinds of poisons in the urine—narcotics, sialagogues, myotics, and such as produce paralysis or convulsions. The urine which is secreted in daytime is more narcotic; the night urine is more conducive to spasm. Bouchard also found that the toxicity of the urine can be decreased by inhalation of oxygen.

Gautier discovered first that only four-fifths of the oxygen excreted by the body originates from inhaled oxygen. He already expressed the opinion that there might be a ferment in the body which would furnish the last fifth from some other source. In 1892 Poehl discovered in the spermin a ferment which doubtless does what Gautier anticipated.

Substances of especially great toxicity are found in the urine during attacks of contagious diseases. Griffith found here some well-characterized alkaloids in sufficiently large quantities to enable him to study not only their chemical composition, but also their physiological action. Some of them are also found in pure cultures of the germs which cause the disease. They are called ptomaines. Poehl puts them together with the leucomaines; there is, however, a characteristic difference between both. The ptomaines can also, by oxidation, be changed to less poisonous substances.

Very strong leucomaines are found in the urine in cases of cancer, eczema, epilepsy, etc. Thomas Oliver, in the preface to his translation of Bouchard's *Lectures on Auto-intoxication in Disease,* says that the urine of maniacs, when injected into the blood of animals, produces excitement and convulsions, while that of melancholics causes depression of spirits.

Bouchard himself says in the above-named work: "One day of great muscular activity, spent in the open air in the country diminishes the toxicity of the urine by one-third, and on that day the toxicity does not diminish only during the time devoted to muscular exercise. The toxicity which diminishes during work, remains less during the repose which follows this work and during the sleep which succeeds this day of muscular activity."

Bouchard, in the writer's opinion, emphasizes too much the muscular activity and overlooks entirely the part of the light. Muscular exercise in open air and sunlight brings the blood into circulation and assists it in taking up oxygen and excreting the waste products. The same exercise, however, in spite of the best air, will have a different effect in a dark hall. It is not the muscular activity and the oxygen alone that we need. We also need the sunlight with its actinic rays for the production of spermin. The sun does more for the reduction of the toxicity of the urine than the labor.

Labor and fever have the feature in common that both cause an increase in the consumption of albuminous substances through metabolism. The result, however, is entirely different. Labor is a normal function of the body. If performed in pure air and good light, it leads to the production of large quantities of urea and few leucomaines. It stimulates the production of spermin. Therefore, the urine will be only slightly toxic and will remain so, because the increase in spermin will outlast the labor.

Fever is not a normal function of the body. It is a reaction against a disease. The disease produces a great waste of albuminous matter in the body, and this waste leads, not so much to the production of compounds of the kreatin group, as of such of the xanthin group and the neurin bases. The result will be an excessive formation of uric acid instead of urea. All conditions are unfavorable to the acquisition and the work of oxygen, and the urine will be charged with leucomaines. The amount of urea will be also increased, but the other compounds so much the more. Conditions are also unfavorable to the production and the work of spermin, and death is liable to follow from auto-intoxication.

Not long ago, Gautier, by careful investigations, corroborated what Schoenbein, Hilger, and others assumed years previously, namely, that besides processes of oxidation also processes of reduction take place simultaneously in the tissues. The latter occur in and around the nucleus, the former in the protoplasma.

Normally, the cells are immersed in oxygen-bearing juices and live aërobically. Gautier, however, showed that they can also live facultative-anaërobically and the products of the anaërobic life are only quantitatively different from those of the aërobic life. The former contain about three times more leucomaines than the latter, and at the same time the juices show acidulation. The distinction between aërobic and anaërobic life is liable to create the wrong impression that only the former was based on assimilation of oxygen. The difference, however, is only in the source of the oxygen. In aërobic life oxygen which comes directly from the air is consumed, while in anaërobic life the oxygen is,through processes of reduction, extracted from the tissues. Therefore the presence of free oxygen protects albumin against decomposition by anaërobic saprophytic germs, as it is doubtless easier to absorb free oxygen than to extract it. At the same time free oxygen kills the germs, because the products of decomposition which are their food are not formed.

The action of spermin is not limited to nitrogenous substances. It operates as well on fat, fatty acids, carbohydrates, aromatic compounds, etc. The acidulation of the juices is caused especially by lactic acid. The active spermin also destroys this and restores the alkalinity of the juices.

It has been satisfactorily proven by Kossel and others that the xanthin compounds and uric acid originate from nucleo-albumin and not from the albumins of protoplasma. In retrogressive metamorphosis the nucleo-albumin is first split into albumin and nuclein; the latter is split into albumin and nucleinic acid, and this into phosphoric acid, xanthin compounds, carbohydrates, and spermin. The reader will notice that the nucleo-albumin has a very much more complicated structure than the albumins of protoplasma, several molecules of which it contains.

If the juices are alkaline and contain a sufficient amount of oxygen, the xanthin compounds, under co-operation of the spermin, are oxidized first to uric acid and then to urea, and the carbohydrates are oxidized to carbonic acid and water. Urea is the highest stage to which nitrogenous matter is oxidized by the metabolism.

If the juices, however, are neutral or slightly acid and short of oxygen, spermin will crystallize as insoluble and inert phosphate, and the xanthin compounds as well as the carbohydrates, etc., will remain more or less unchanged. A condition of retarded metabolism will result which Hippocrates already, with admirable acumen, distinguished as "diathesis" from "dyscrasia." Following him, still, to-day, we speak of uric-acid diathesis and of scrofulous dyscrasia.

A large number of diseases belong under the head of diathesis which have the peculiarity in common that they impress us with being symptoms of deeper-seated diseases rather than diseases of their own. Two main groups are formed by the question whether the metamorphosis of the nitrogenous or that of the non-nitrogenous substances is the more retarded. To the latter group belongs, for instance, glycosuria. While many cases are well pronounced, there is often no distinct line to be drawn between the members of both groups, nor between them and the auto-intoxications. We speak of auto-intoxication when the toxic products of retarded metabolism prevail, and of diathesis when the non-toxic prevail. The relation between diathesis and dyscrasia is causal. Dyscrasia causes diathesis, and a diathesis from another source is a predisposing moment to infection, and consequently development of a dyscrasia.

As a gauge for the intra-organic oxidation, Poehl introduced the following coefficient: First, the quantity of all nitrogen in a certain measure of urine is found, and then the nitrogen which is contained in urea. Poehl gave to the proportion between both the name of "coefficient of oxidation." Normally, 91 to 94 per cent. of the nitrogen eliminated by the kidneys is contained in the urea. Sometimes Poehl found even 96 per cent. of all nitrogen in urea.

A lowering of the coefficient under 91 per cent. indicates a decrease of the intra-organic oxidation below the normal. Poehl calls this decrease moderate until it reaches 87 per cent., and below this he calls it serious. The coefficient may sink below 60 per cent. In a case of Asiatic cholera Poehl found once a decrease to 47.8 per cent. In all feverish diseases it is seriously decreased, and if death comes it is actually caused by autointoxication.

Poehl's coefficient is of the greatest value in detecting the earliest beginning of chronic diseases, especially in childhood. Early recognition is one of the chief tasks of preventive medicine.

Certain kinds of cases occur everywhere looking exactly alike. So every reader will once in a while meet with a well-dressed little girl "of good family," about ten years old. She looks as healthy and bright as a child of her age can be. The only thing that you observe is that she wears spectacles. She states that as soon as she takes off her glasses she suffers a headache. The mother states that the little girl has never been sick. "She is only a little delicate, as I am myself." The mother thinks children "of good family" are of course not so robust as farmer boys. If you inquire further you will find that "delicate" means repeated but slight attacks of nasal and bronchial catarrh, headache, slight fever, and costiveness. Besides these symptoms you will find a very light degree of anæmia and here and there an enlarged lymphatic gland. If you examine the urine of such a little girl after Poehl's method you will always find the coefficient of oxidation moderately lowered.

If you place such a little girl under the same conditions as the farmer boy—that is, if you make her work in fresh air, climb hills, ride horseback in bright sunshine, etc.—then after a few months she will come home with red cheeks and without spectacles. The headaches have disappeared, and when she lost her spectacles while riding horseback she discovered that she could do as well without them. Her complexion may have suffered a little, but how much did she gain for all her future life.

If, on the contrary, such a little girl is kept indoors to protect her from catching cold; if, whenever she leaves the house, her face is protected against the sun with a veil to preserve the complexion, the outcome will be different.

The ideal of preventive medicine is not only to protect and prolong the life of man, but even to make it everlasting; to give us earthly, not heavenly, immortality. For practical reasons, there is little hope for our ever reaching this end. Nevertheless, through Pasteur's and Brown-Séquard's genius, we have gained two important points: First, we have recognized the real cause of death from senility; second, we have found many new means at least of prolonging life, if we cannot perpetuate it.

We know to-day that flesh decays after death, not from intrinsic causes, but by the invasion of germs; and to-day we know that life is terminated in a similar way. Senility is not a natural consequence of time; it is a disease. It is the most chronic form of septicæmia. Germs conquer our bodies by degrees, consuming their vitality. On account of the practical impossibility of keeping them away forever, we all finally have to succumb to them. We succumb either to a last virulent attack or fade away and die the peaceful death of heart-failure from auto-intoxication.

Therefore, preventive measures should be taken from the very first beginning of life. They should begin during fœtal life, even before fecundation. People who are to become parents should remember that only healthy people can beget healthy children.

The most insidious of all germs is the tubercle bacillus. We must be on the lookout for it from the earliest youth. In childhood the epidermis is thin and vulnerable, and slight abrasions lead sometimes to the formation of warts. In such warts, besides other germs, tubercle bacilli have been found. Beside the skin and the intestinal canal, the respiratory tract will furnish places of entrance.

The bacillus of human tuberculosis, like the gonococcus, has not yet been found outside of the human body, except where it apparently came from people affected with the disease.

Human tuberculosis is more or less transmissible to other mammalia, but not to birds. Birds, however, have their own tuberculosis. Their tubercle bacillus is different from that of man. Cattle and swine have a tuberculosis of their own as well. Here the question arises whether the tubercle bacilli of different animals are different, well-defined species or only one specie, certain features of which have changed by adaptation to new conditions. This question is now prominent since the address which Koch delivered at London before the Tuberculosis Congress in July, 1901, in which he declared it unnecessary to take any preventive measures against bovine tuberculosis. Before the discovery of the tubercle bacillus, on Virchow's authority, human and bovine tuberculosis were considered as two entirely different diseases. The latter was called grape disease (Perlsucht). In 1884, Koch pronounced both diseases to be identical. He said they both were caused by the same bacillus and the only difference was in the host. His authority was so great that he even outranked Virchow, and his opinion was generally accepted as correct. Virchow never admitted defeat. He always protested against Koch's claim, and soon others contended that the tubercle bacilli of different animals showed some marked differences. This was especially done in France and Italy. Koch soon admitted the existence of slight differences, but was led to a radical change of opinion only when he found that it was impossible to inoculate human tuberculosis into cattle. He could, of course, not make the counter-experiment from cattle to man. He only inferred that this would also be impossible from the fact that children which had been fed with milk containing bovine tubercle bacilli hardly ever develop tubercular lesions in the mucous membranes of the bowels. Consequently, he pronounced bovine tuberculosis as non-transmissible to man and preventive measures against it as unnecessary.

The writer cannot agree with Koch in two points:

First, it seems to him that the impossibility of an acute transmission of the bacilli *en masse* does not exclude the possibility of a slow, gradual transmission, during which some of the germs gain time to adapt themselves to the new host. If a child drinks for months every day milk containing the bovine tubercle bacillus, the character of the infection will be quite different from that by the hypodermic injection of a pure culture.

Second, the writer cannot admit tubercular ulcers as primary lesions from the infection with the bacilli. If the bacilli are introduced with milk probably no primary lesions at all will be made in the bowels when some of them are absorbed. The first lesions must be looked for not in the bowels, but in the mesentery glands, and really, what our medical forefathers called "tabes mesenterica" is a local tuberculosis of the mesentery glands without lesions of the mucous membrane!

Max Wolff (*Deutsche medicinische Wochenschrift*, 1902, No. 32) also found that tubercle bacilli, when introduced with food, pass through the intact mucous membrane of the bowels and make primary lesions at distant places, especially the mesentery glands. He also states that Ostertag in thousands of hogs affected with tuberculosis, which they contracted with food, never found any lesions in the bowels, but always in the lymphatic glands.

In the same article Wolff reports the result of a post-mortem on a man of sixty-three years, who suffered more than a year with diarrhœa and pains in the abdomen. There were several apparently old ulcers in the mucous membrane of the bowels, together with fresh miliary tuberculosis of the peritoneum and spleen, while the lungs and bronchial glands were intact. Wolff says nothing about the condition of the mesentery glands, still, he takes this case for one of primary tuberculosis of the bowels, according to Koch. He succeeded in transferring tuberculosis from this case on guinea-pigs and from them on a calf which developed all the characteristic symptoms of regular bovine tuberculosis (Perlsucht).

The tubercle bacilli, having passed through the epithelial cover of the body, first settle in lymphatic glands where they may remain for years, apparently without doing any harm. Here is the place where bovine tubercle bacilli might be transformed into human tubercle bacilli. The writer would not be surprised if, in the course of time, we would discover that other (saprophytic) bacilli can do the same.

The most conspicuous symptom which the tubercle bacilli produce in the lymphatic glands is a non-inflammatory enlargement. In children this is named scrofulosis. Such children are generally not considered as sick; they go to school. As a rule, they have some slight troubles—a little eczema, some nasal and post-nasal catarrh, catarrh, or even suppuration of the middle ear, sore eyes, etc. Beside they may have two different kinds of habitus. They may be either too fleshy and slow in their actions, or they may be too lean, with a pale, thin skin through which the blue veins are plainly visible, and they are at the same time bright and exceptionally intelligent. If the urine of such children is examined after Poehl's method, the coefficient is always found more or less below the normal. The physicians of former ages would say the "vitality" of such children is lowered; they have a dyscrasia. When such children are wounded the wound does not heal so well as in healthy children.

When people affected with local tuberculosis, in the lymphatic glands or elsewhere develop general tuberculosis, the question arises whether this comes from the old germs or from a new infection. It is impossible to decide this question directly by facts. The reader will have no doubt that a new infection could accomplish the result, but he will find it difficult to explain why the first did not accomplish it altogether. The writer asks: Why does tuberculosis so often remain local for years, with a pronounced tendency toward self cure, while in other cases it suddenly becomes virulent and spreads all over the body?

The tubercle bacilli, by taking possession of the lymphatic glands and by lowering the vitality, make the body defenceless against other infections. The tubercle bacilli do not, like the typhoid bacilli, immunize their host against further infection with the same germ. They even seem to predispose the body to infection with all kinds of bacteria.

Baumgarten, who divides with Koch the honors of having discovered the tubercle bacillus, found that it has no positive chemotactic force. It has a peculiar influence on the fixed connective-tissue cells, promoting karyokinesis. It causes these cells to increase in number and gather around it. Thus the tubercle originates. The leucocytes do not put in an appearance until later on, apparently attracted by something else than the tubercle bacilli. It seems that the latter take up oxygen from the tissues and kill locally by textural asphyxia. A striking feature is the small number of bacilli compared with the quantity of tissue they kill. They do their work with their metabolism, not with chemotaxis. Therefore, the actinic rays of light are their worst enemies. They stimulate chemotaxis; they attract the leucocytes; they cause spermin to be produced—and the tubercle bacilli succumb. This accounts for Finsen's success with phototherapy in local tuberculosis, and here we see a great future for the treatment of tuberculosis generally.

Koch, in 1890, found that in guinea-pigs, after inoculation with pure cultures of tubercle bacilli, the wound usually heals rapidly, and no trace of the operation is left except an enlargement of the nearest lymphatic glands. About two weeks later, at the point of inoculation, an induration appears which ulcerates and remains so until the death of the animal. If, however, another inoculation is made before the first wound heals, this will prevent it from healing. The surrounding tissues assume a dark color and necrosis sets in. The tubercle bacilli act like anthrax bacilli, apparently with negative chemotactic force. After the necrotic parts have sloughed away a sound ulcer remains, which heals rapidly without leaving any enlargement of the lymphatic glands behind. The same result was obtained with dead cultures of the tubercle bacilli or with the toxins alone. The toxins are harmless to healthy animals, but very poisonous to such as contain tubercle bacilli.

Koch found that if the material for the further injections was more diluted and the injections were repeated about once a day, the animals improved. Instead of dying in from six to ten weeks, they lived as long as nineteen weeks. Thereupon Koch based his hope that it might be possible to prolong the life of tuberculous subjects by the hypodermic injection of tubercle toxin. For this purpose he prepared his famous tuberculin, which is a 50 per cent. glycerin extract of pure cultures of tubercle bacilli. It contains only the toxin, not the bacilli.

The reader knows what a disappointment followed its use. Instead of prolonging it seemed to shorten the life of tuberculous patients. Its use on men was soon abandoned, apparently by everybody. It remained in use only in veterinary practice, for the detection of tuberculosis in cattle.

Koch, however, remained unmoved. He insisted on his being on the right road to the detection of the cure for tuberculosis, and tried to improve his tuberculin. Finally, he found a preparation which he called T. R. The difference between this and the old tuberculin is that the latter is a protein, while T. R. is a plasmin, simply the expressed juice of the bacilli. Koch claims to have immunized and cured guinea-pigs with it. His claims, however, were hotly contested, especially by Baumgarten.

However much Koch's treatment was discredited, it has some advocates among men of established authority, for instance, Klebs and others.

Fisch (*Journal of the American Medical Association*, October 30, 1897) succeeded in immunizing horses against tuberculosis with Koch's old tuberculin, as well as with T. R., and used afterward their blood serum for curative purposes. So far he did this only with guinea-pigs, but he claims to have obtained good results.

In 1901, Koch found an advocate who bids fair to turn the tide again in his favor. Goetsch was one of the first who experimented with tuberculin, in 1891. With rare acumen he avoided the mistake by which others brought the tuberculin into discredit. While others injected more tuberculin the more fever the patient had, he recognized early the danger threatening from this side, and used it only in doses so small as to avoid a rise of temperature. The diagnosis of tuberculosis was based on the rise of temperature after larger doses of tuberculin and on the presence of the bacillus in the sputum.

Of 175 patients whom he succeeded in keeping more than four weeks under treatment, Goetsch cured 125, or 71 per cent. The remaining 50 patients mostly gave up the treatment too early, after having been improved but not fully cured. The average duration of the treatment in the cured cases was 198 days, varying from 50 to 791 days. The average increase in weight was 19 pounds.

Goetsch commences the treatment with doses of 0.0001 and increases slowly. He never makes an increase before the last dose is tolerated, and without any feverish reaction. The injections are given once every two or three days. The patient is considered as cured when he does not react any more with fever on 0.05 tuberculin. Goetsch had the best results with Koch's old tuberculin. His first principle is never to use it on a feverish patient. The fever must subside before the treatment is commenced. If the fever can no more be subdued, the patient is too far gone for treatment with tuberculin.

(To be continued.)

HEMORRHAGIC SEPTICÆMIA.

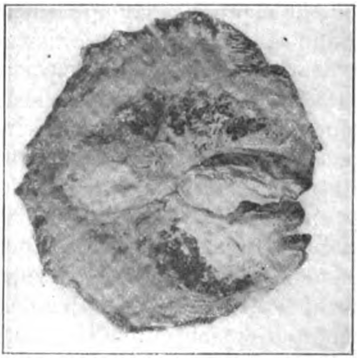
By M. H. Reynolds, M.D., V.M.,
UNIVERSITY OF MINNESOTA, ST. ANTHONY'S PARK, MINN.

Provisional Report on Bacteriological Examination of Hemorrhagic Septicæmia at State Experiment Station, St. Anthony's Park, June 9, 1902.

(Concluded from page 95.)

Suspected Outbreaks Not under the Personal Observation of the Writer. Mr. W. L. Hoover, Faribault, called at my office on December 29th and said he had seventeen head of cattle coming two years of age and had lost four, the first case about December 1st, and the last one about December 27th. The first three died within a week, leaving quite an interval before the fourth one died, on December 27th. All of these animals died very suddenly. The owner noticed on skinning the animals hemorrhagic areas on the body surface, particularly on the neck, and stated that a similar condition may have been present in every case, but it was not noticed. He did not know whether similar areas had appeared upon the viscera or not.

Fig. 11.



Diaphragm showing typical hemorrhages.

Mr. E. G. Stark came to see me on December 29th concerning the loss of cattle in his neighborhood. He reported that Mr. Isaac

Carter had lost three cattle in about a week, out of a total of twelve head. This occurred just before Christmas. The first one died in about six hours after having been noticed sick. The two others also died very suddenly. He could give no information concerning the post-mortem conditions, but stated that the cattle had been fed on shocked corn and kept in the stable and yard.

Later I received a letter from Mr. Stark, dated January 28th, giving more definite information concerning the losses among Mr. Carter's cattle. He states that the first one died about December 10th. It had been found sick in the morning and died about 3.30 P.M. The second died about ten days later. On coming up a hill on its return the animal stumbled and fell dead, and, as he states, "it did not even kick after falling." This was a two-year-old steer. The third animal died about four days later. This one was taken sick at about 11 o'clock in the morning and lived until 4 o'clock the next morning, suffering very severely, at least so the owner supposed. This probably means that the animal did considerable struggling, and possibly groaned while down. The fourth animal was a young cow, and, as he expressed it, "she also died hard." About January 5th or 6th, two animals were found dead in the barn in the morning, and the next morning two more were found dead. None of these four last animals had been noticed sick. At the time of this outbreak Mr. Carter had sixteen head of cattle and lost eight. The owner informed Mr. Stark that those cases which had lived long enough to give an opportunity for observation had seemed very tender to the touch, particularly over the spinal column and near the base of the brain. The heads were drawn as far back as possible and the eyes "rolled up." The animals that died had been fed corn on the stalk.

One interesting bit of information in connection with this outbreak was to the effect that the owner had these eight animals drawn out just behind his stacks within a few yards of the barnyard after having removed the skin, and that no further cases appeared. One of the neighbors skinned most of these animals, for Mr. Carter had a nice lot of cattle, but his cattle received no infection.

Mr. Peter Nelson had lost eight and killed two out of a total of seventeen head. The first case appeared early in November. The deaths, with the exception of two, came very close together. These two died a week or so later. No careful examination post-mortem was made, and no further information was obtainable from Mr. Nelson.

Mr. Jens Sorensen, of Monticello, wrote me on December 7th concerning some disease among a neighbor's cattle. His letter was to the effect that a certain neighbor had lost eight cattle, and other neighbors had lost cattle from this disease. Some of these cattle, which the owners had supposed to be in perfect health, had dropped suddenly and died practically without struggling. Others have lived a few hours after being taken sick. The neighbors had noticed that those which lived for a few hours appeared very sensitive along the spinal column. This is very meagre information, of course.

Richard Anderson, Belle Plaine, had eleven head and lost four. The first one died about November 13th, the last one November 29th. None was sick at the time the information was received. The period of sickness was given as approximately three hours, but varied. The owner stated that the head was drawn backward after the animals went down; dark red areas were noticed under the skin, but no spots were seen on the internal organs. His cattle were confined to the yard and usually given dry feed, including shocked corn fodder. Mr. Anderson noticed also the peculiar grunting expiration, usual sensitiveness of the body surface under pressure, and that the animals were disinclined to walk around, being apparently sore. .He described the typical condition of the intestines and rectal mucous membrane.

Diagnosis. It is very evident in view of the widely different types exhibited in different outbreaks, the very brief period of illness, and the similarity between this and certain other diseases, that a positive ante-mortem diagnosis is necessarily out of the question in many cases and uncertain in any case, except with the aid of previous autopsy and clear histories in previous cases of a given outbreak. The diagnosis must depend on the history, what little can be learned of the ante-mortem symptoms, and the results of examinations post-mortem. In all cases which came under the observation of the writer there were opportunities for such examinations, because all cases terminated fatally.

Differential Diagnosis. So far as facts occur to the writer at present, the differential diagnosis comes between anthrax, symptomatic anthrax, cornstalk disease, specific cerebro-spinal meningitis. There is no question in the writer's mind but that hemorrhagic septicæmia has in the past been very frequently diagnosed as other diseases, particularly as anthrax and symptomatic anthrax. The writer suspects that very many cases of so-called cornstalk disease have been nothing more or less than the disease now under discussion.

The differential diagnosis is perhaps shown as clearly in the preceding table as could be given in any other way.

The ante-mortem differential diagnosis, exclusive of laboratory findings, between hemorrhagic septicæmia and anthrax is to be made upon the appearance of the blood, the history of spread, the extent of spread, and temperature.

The ante-mortem differential diagnosis, exclusive of laboratory findings, between hemorrhagic septicæmia and anthrax must evidently be based upon the history of the cases, especially the ages of animals affected, temperature, local superficial lesions, and examination of blood taken from the tumor in case such lesion is present.

A discussion of ante-mortem diagnosis, exclusive of laboratory findings, between hemorrhagic septicæmia and specific cerebro-spinal meningitis of cattle is apparently not justified by existing reliable information concerning these two diseases. Our Minnesota outbreaks of infectious cerebro-spinal meningitis among cattle have been of a rapidly fatal type, and showing, so far as our present knowledge of the subject is concerned, no clinical evidence upon which a differential ante-mortem diagnosis could be made. In other words, for our ante-mortem diagnosis between these two diseases we are at present dependent almost wholly upon the laboratory.

It will be noted in studying the table that in their histories and general clinical evidences these two diseases run very closely parallel, but may be very easily distinguished at autopsy when the typical hemorrhagic lesions appear in the one and do not appear in the other.

The post-mortem differential diagnosis between hemorrhagic septicæmia and anthrax rests upon the appearance of the blood and condition of the spleen. In so far as general hemorrhagic conditions are concerned, hemorrhages involving the serous cavities, results of inoculation with the laboratory animals, and hemorrhages involving the heart or its membranes, and also in mortality, the diseases are very closely parallel indeed.

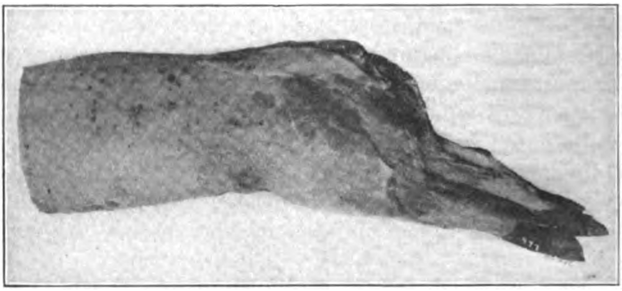
The post-mortem differential diagnosis between hemorrhagic septicæmia and symptomatic anthrax lies: in the appearance of multiple localized hemorrhagic areas in the former, but not in the latter, and emphysematous tumors involving the subcutaneous areolar and muscular tissues, especially of the upper portions of the limbs, which are frequently present in the latter but not in the former.

The post-mortem differential diagnosis between hemorrhagic septicæmia and cerebro-spinal meningitis, except in the cerebro-spinal type of the former, rests upon the involvement of the brain and cord, and their membranes, and upon the presence or absence of the typical hemorrhages elsewhere. Localized hemorrhages elsewhere in the one case or their absence in the other, should clear up the diagnosis as positively as would be possible without laboratory work. The differential diagnosis, so far as laboratory work is concerned, is apparently not particularly difficult, provided the work can be done under favorable conditions.

It is out of the question to discuss intelligently the differential diagnosis, either ante-mortem or post-mortem, between hemorrhagic septicæmia and cornstalk disease until we know something at least of what the latter is and have some definite information concerning it.

Treatment deserves no discussion, for, so far as our present information concerning the disease extends, it is a waste of time and medicine, although it is true that the two animals, Alzanka and Dell (University Farm outbreak) received full doses of nerve sedatives and lived much longer than other cases, but terminated in death just the same.

FIG. 12.



Swine-plague hemorrhages. These hemorrhages resemble very closely the hemorrhages of bovine hemorrhagic septicæmia. It is interesting to note that the specific germ or germs of swine-plague and hemorrhagic septicæmia are not distinguishable by any known laboratory procedure.

General Conclusions. For the present at least, we must consider the term "hemorrhagic septicæmia" as quite inclusive, a sort of generic name which must cover a multitude of widely varying types of disease, in all of which the specific micro-organism, B. bovisepticus is found, and so far as our present information is concerned, we are apparently justified in considering this germ as the specific cause of the widely varying types. It is also safe to assume that it is not by any means a new disease, the only new feature about it being probably its definite diagnosis by Dr. Wilson, of the Laboratory of the Minnesota State Board of Health. Very many outbreaks of this disease have unquestionably been diagnosed as cornstalk disease, black-leg, and anthrax. Those of us who have been so fortunate, or unfortunate perhaps, as to have had personal experience with the disease in Minnesota have had occasion to smile at the clearly described typical outbreaks of hemorrhagic septicæmia appearing in our veterinary journals under other names.

A COMPARATIVE STUDY: HEMORRHAGIC SEPTICÆMIA, ANTHRAX, SYMPTOMATIC ANTHRAX, AND CEREBRO-SPINAL MENINGITIS.

	Hemorrhagic septicæmia.	Anthrax.	Symptomatic anthrax.	Cerebro-spinal meningitis.
Aet. organism	Bacillus bovisepticus.	Bacillus anthracis.	Bacillus chauvoei.	Diplococcus intercellularis; diplococcus pneumoniæ.
Infection	Method unknown.[1]	Ingestion, inhalation, and inoculation.	Inoculation.	Uncertain, probably ingestion, possibly inhalation.
Extent of spread	Enzootic.	Epizootic.	Enzootic.	Enzootic.
How spread	Unknown.	Movement of any infected substance.[2]	Carcasses, stagnant water, feces, food, etc.	Uncertain, probably food stuffs in many cases.
Season favoring	Indifferent.	Wet spring, then dry, hot summer.	Most common in summer and fall.	No satisfactory information.
Susceptible animals	Cattle, sheep, horses, various wild animals.[3]	Nearly all domestic, many wild animals.[4]	Young cattle, sheep, goat.[5]	Cattle, horses, sheep, goat, and dog.
Laboratory animal inoculation	Generally fatal.	Generally fatal.	Rabbit and mouse resist.	D. intercellularis resisted by guinea-pig and rabbit. D. pneumoniæ generally fatal.
SYMPTOMS.				
Onset	Sudden, except in rare chronic type.	Sudden.	Sudden.	Usually sudden.
Local lesion	Swellings, slight or absent.	Swellings may be present; absent in acute.[6]	Swellings usually present, and emphysematous.	Absent.
Urine	Sometimes blood stained.	Frequently blood stained or dark.	Sometimes blood stained or dark.	Normal appearance.
Feces	Often blood stained when alive several days.	Frequently blood stained or coated.	Sometimes blood stained.	
Temperature	Frequently normal or subnormal.[7]	Very high early.	Very high early, may fall later.	Normal.
MORBID ANATOMY				
Subcutaneous gas	Absent at death.	Absent at death, but decomposition rapid.	Present before death.	Absent.
Blood	Normal.	Dark, feeble coagulation; no reddening on exposure.	From general circulation normal; reddens on exposure.[8]	Normal.
Hemorrhages	Usually present.[9]	Very general; nearly all organs subject.	Not general, but may occur in various tissues.	Reported present, but diagnosis questioned.
Serous cavities	Walls frequently show small hemorrhages.	Reddish serum usually present	Reddish serum may be present.[10]	May contain reddish or lemon yellow serum.
Spleen	Normal, except superficial hemorrhages.	Enlarged, dark, soft.	Normal.	Normal.
Mortality	80–90 per cent.	80–100 per cent.	80–100 per cent.	80–90 per cent.

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[1] In some cases apparently by inoculation.
[2] Including blood and discharges. Insects active agents of spread.
[3] Possibly swine.
[4] Pig but slightly susceptible.
[5] Rare in cattle over two years old.
[6] Not emphysematous.
[7] Rising in some cases rapidly just before death.
[8] From tumor dark frothy and fetid.
[9] May vary greatly in size and intensity, but well defined.
[10] Especially in the abdominal cavity.

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

VETERINARY STUDENTS IN ITALY. During the school year of 1901–02 over 1200 students attended the veterinary schools of Italy. These were distributed as follows: Naples, 269; Turin, 212; Milan, 200; Bologne, 199; Pisa, 109; Perouse, 74; Modena, 53; Parme, 45; Camerino, 42. The opinion prevails that there are more schools in Italy than the needs of the country demand.—*Rec. de Med. Vet.*

HÆMOPNEUMOTHORAX FROM INJURY TO THE RIBS. Darrow reports a horse that was kicked by another horse over the ribs. The consecutive symptoms were a hot, painful swelling, dyspnœa, temperature, 39°. Within the wound was found an enormous blood-clot, fracture of the eighth rib, and perforation of the pleura. Three days afterward the inferior third of the pleural sac was filled with exudation; above there was increased resonance on account of air having entered the pleural cavity. Thoracentesis was practised at intervals, and an abundant aseptic liquid was removed, which became less at every operation. Finally the increased resonance disappeared and the recovery was complete, due essentially to the non-infection of the pleura after the injury.—*Rev. Vet.*

BOVINE TUBERCULOSIS FROM INGESTION OF TUBERCULAR MATERIAL. Schottelius, of the Institute of Hygiene of Freiburg, experimented upon the transmission of human tuberculosis to cattle by feeding them upon expectorated material. The experiment involved a cow, and two calves six months old. One cow and a calf were reserved as checks. Each animal received during three months tubercular matter twenty-four times, obtained from persons in advanced stages of tuberculosis. This tubercular material, in quantity of 50 grammes, was mixed with the feed. During the course of the experiment nothing abnormal was observed. The necropsy of the cow showed a tubercular enteritis, with considerable tumefaction of the mesenteric lymphatic glands and caseation of the mediastinal and bronchial glands; there were also found caseous pneumonia of a tubercular nature and isolated miliary tubercles on the pleura. In the calves the submaxillary ganglia were much tumefied and caseous, and some of the mesenteric glands were tubercular.

Microscopic examination showed the presence of the tubercle bacillus in the diseased organs of these three animals. The organs of the check animals were normal.

From these facts Schottelius concludes that human tuberculosis is transmissible to the bovine species, and that this disease in man is identical with that in cattle.—*Munch. med. Wochensch.*

RESECTION OF SYNOVIAL MEMBRANES IN THE HORSE. The operation is applicable to dilatations of the synovial sheaths of tendons (windgalls). The technique of the operation is as follows: (1) Excision of a fusiform flap of skin; (2) dissection of the synovial membrane; (3) excision of a flap of synovial membrane; (4) flushing of the synovial sac with a hot solution of phenic acid; (5) suturing of the synovial membrane with catgut; (6) suturing of the skin; (7) dressing of gauze and sterilized cotton.

Observation.—Draught-mare with a large windgall on the posterior right pastern, causing lameness.

Operated September 20, 1899. Excision of a flap of skin, 7 cm. long and 2.5 cm. wide, a trifle behind the axis of the tumor, to avoid the digital vessels and nerves; dissection of the subcutaneous connective tissue; puncture of the synovial sac with the bistoury, from which escaped grumous synovial fluid, and removal with the scissors of the accessible part of the membrane; fixation of the borders with artery forceps and flushing of the synovial sac; suture of the synovial membrane with catgut, and of the skin with Florence hair; dressing. September 21, no fever; no weight on foot. September 22, foot bearing some weight. September 23, foot bearing considerable weight. Not any change supervened until October 10, when the dressing was removed. The tumor had disappeared and the incision cicatrized. The sutures were removed and the parts redressed. Dressing removed October 30 and the mare sent to work. The windgall did not return.

Meynard and Moreau operated upon five cases. In three the result was permanent; in one the swelling returned; in the fifth the immediate cure was complete, but the animal had to be destroyed on account of paralysis from causes not stated, although prior to this accident the animal was able freely to bear weight on the foot.

The most vigorous antisepsis must be observed. Calvé demonstrated that this can be done by operating on a litter covered with a rubber mattress. Maud M. fostered the animal in stocks (Vinsal). —*Rev. Gen. de Med. Vet.*

REPORTS OF CASES.

THREE ANOMALIES I HAVE MET WITH IN CASTRATION.[1]

By J. R. Sanders, M.D.C.,
CORYDON, IOWA.

In reporting these cases I will dispense with a description of the manner of casting and the mode of disinfecting. I will say, however, that in each case due regard was had for antisepsis.

Case I. Hermaphrodite, belonging to Mr. Sager, three miles southeast of Promise City, Iowa. This gentleman informed me that he had a mare that would behave like a stallion when in company with mares that were in heat, and, owing to her bad disposition, he was compelled to keep her to herself. May 16, 1902, I had occasion to be in his vicinity. Mr. S., being informed by telephone, soon arrived with the mare, which I observed was a well-formed, muscular animal of the Percheron breed, rather large, dark, iron-gray, three years old, and in very good flesh.

Ordinarily one would not suspect another sex in disguise. Closer inspection, however, showed that there was about an equal tendency toward either sex. The udder was large and pendent, resembling a gland that had once been active. There was no commissure in what appeared to be a queerly-formed vulva, which rounded off inferiorly to a rudimentary penis, which was pierced with the urethral opening. The testicles could not be located by digital examination, consequently I decided they must be intra-abdominal. The owner requested me to find them, if possible, regardless of danger, as the animal was not worth much as it was. For the sake of being brief I will only say that the animal was cast and operated upon, both testicles being found inside the abdominal cavity close to the abdominal ring, and brought to the surface and removed. A good recovery followed.

Case II. Cryptorchid mule. I was called to our county farm April 26, 1898, to castrate a ridgeling mule two years old, medium weight, and in good condition. The left testicle had been removed the year before. The mule was cast and held upon his back by two men. After making an incision opposite the median line the hand endeavored to follow the natural course of the canal. The peritoneum was opened close to the abdominal ring. Two fingers inside the vas deferens was found without any trouble and brought out. The testicle would not follow. Holding the vas in one hand, I again searched inside the peritoneum as far as two fingers could reach. Not finding the testicle, I thought I would try taking off the vas, which was unusually large. This did not prove a success, for in about two weeks the warden informed me that the mule was as bad as ever, and had to be stalled on account of his amorous disposition. He thought the donkey must have had three seeds. Taking his advice I departed at once to remove, if possible, the other seed. Securing the animal as before, I gained the abdominal cavity close to the old wound. With the whole hand inside I soon discovered, about half-way to the renal organs, a mass about the size and shape of a large cocoanut. This was pulled loose from its attachment and, with considerable traction, brought through the opening. This proved to be a testicle with red surface, indicating recent inflammation, the centre being filled with dark-colored matter, fluid in consistency, which probably made up four-fifths of the entire bulk. Why this gland in its diseased condition influenced its possessor is a mystery. A good recovery resulted.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, January 14 and 15, 1903.

Case III. Cryptorchid mule, two years old, rather large and in good condition; right testicle in scrotum, left intra-abdominal. Operation took place on the owner's premises May 28, 1901. The animal was cast and held in position by assistants, and the incision made about one and one-half inches to left of the raphé. The canal was followed as near as possible, and two fingers entered the abdominal cavity near the ring. After about five minutes' search I located an unusually large vas, which was brought to the surface. Traction could not induce the testicle to follow. Thinking I might have a case similar to No. II., I began to search the abdominal cavity with the whole hand. By following the vas in for several inches I could plainly make out an irregular mass, with an osseous formation in the interior. Near this hard part I could feel an attachment to something, presumably the mesentery. A little manipulation with the fingers caused its separation, and the supposed testicle brought to the outside and removed. This specimen I have preserved in alcohol and have brought with me. Anyone thinking it worth while can inspect it. I have never investigated the hard substance. The other I am confident is testicular tissue.

Perhaps I should remark that after the mule regained his feet a loop of intestine dropped out and descended very near to his hocks. Knowing the mule to be of good disposition, as he was raised a pet, I lay hold and suspended the bowel until he was recast, when it was returned and secured by bringing the incision together with two deep, strong sutures, which were removed in twenty-four hours. The owner informed me two weeks later that his mule never seemed any the worse by the operation.

DISCUSSION.

Dr. C. E. Stewart said that, although he has had a large experience in cryptorchid castration, he has never met with a cryptorchid mule.

Dr. Moyer said he castrated a cryptorchid mule in Illinois some years ago; also, that he met with an hermaphrodite equine, with external genitals resembling those of the female, from which he removed two hidden testicles.

THE SERUM TREATMENT IN PURPURA HEMORRHAGICA.[1]

BY J. H. MCLEOD, D.V S.,
CHARLES CITY, IOWA.

I CANNOT recommend as yet the serum treatment in purpura hemorrhagica; however, I can inform you just how far I have gone and the results I have had with this serum.

CASE I. Bay horse, driver. The disease developed in a mild form and was doing very well under my usual treatment of stimulants and tonics, but after the fifth day, with the owner's urging, I used the antistreptococcus serum in dose of 30 c.c. The horse was a small driver and I thought this dose enough to start on. It was not necessary to repeat. The horse got along well and made a splendid recovery. No microscopic examination was made in this case, as the symptoms were not grave enough to warrant anything of the kind.

CASE II. Almost similar to the former—a well-developed case of purpura—which yielded readily to the serum in doses of 40 c.c., repeated twice.

CASE III. Called to treat November 17, 1902, a large draft gelding. Temperature 105°, pulse 90, and respiration about 20. On being moved was stiff all over, and did not care to move unless disturbed, but stood quite still or shifted uneasily on his legs; very large swelling on back and medium sized to small on the breast, abdomen, and groin; mucous membranes blanched with occasional patches of ecchymosis. I promptly informed the owners that the horse would most likely die, but commenced to treat the patient immediately with stimulants and tonics, and advised the use of the antistreptococcus serum, if the price was no object. Injected 40 c.c. the following day at noon, although in the meantime the symptoms had improved since the previous day. The stiffness had lessened considerably, mucous membranes highly injected, and the hemorrhagic spots more typical and plainly visible. The following day: Temperature is normal, pulse is 60 and stronger; the swellings have almost disappeared; the animal is bright and the prospect good for recovery. Next day the animal was improving, and, contrary to my advice, was allowed his liberty, and he even played around outdoors. Friday morning the animal was worse again; stiff in hindquarters, more swelling in groin, with straddling gait; groaned, and seemed in considerable pain at times; patches on mucous membranes gone. The symptoms got gradually worse as the day wore on. Later he was removed into a box-stall, where he cast himself. When relieved, on attempting to rise could not do so. One hour later he got on his feet, but his hind legs refused to support his weight. He had now all the symptoms of azoturia. I passed the catheter and found the urine nearly normal in color, but of higher specific gravity. The prognosis was now very unfavorable. Next morning I could plainly see that the end was near. The attendant informed me that he had passed a large quantity of bloody urine, but he did not save any for my inspection.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, Cedar Rapids, Iowa, January 14 and 15, 1903.

As far as the serum treatment in this case is concerned I consider it eminently successful; in fact, more so than in the previous cases, as it was of a much graver nature.

RESULTS OF FOUR OPERATIONS FOR CRIBBING.

CASE I. Chestnut gelding, trotter. The operation consisted of section of the sternomaxillaris below where it receives the spinal accessory; also, resection of the sternohyothyroid muscles. This animal made a few unsuccessful attempts after the operation, but gave it up for a time.

CASE II. Brown draft stallion. Operation: neurectomy of the spinal accessory; unsuccessful. The owner, however, informs me that he only cribs about half as much, and that his general condition has improved very much.

CASE III. Black Percheron stallion. Operation: section of the sternohyothyroid and resection of the spinal accessory; partially successful. The animal attempted the act immediately after the operation, but failed. After three days I found him at times with his mouth held fast to a plank, which he could let go with difficulty. Advised his removal into another stall. This horse was worse when being watched, and at that time next day he performed the act successfully. I ordered his removal into a stall where he could not get hold of anything, and he has not been known to crib since.

Case IV. Operation same as previous case; successful.

FRACTURE OF THE RIBS IN A HORSE.

By William Drinkwater, V.S.,
MONTICELLO, IOWA.

In the early part of the summer of the past year, a farmer brought to my place of business a brown gelding with a large swelling on the left side of the thorax extending from about the eighth rib to the twelfth, and from about the ends of the ribs where they are extended by cartilage to the sternum to eight inches above. The history of the case was, that in the winter—which was a year previous to the past one—the horse was kicked by another. It did not seem to suffer from it for some time and did its share of the summer's work, but the past winter the owner said it got the heaves from food of a poor quality.

On the surface of the swelling were several nodules that were about ready to discharge. I made an opening in one of the more prominent ones and it discharged a quantity of serous fluid. I then explored with the fingers the various recesses of the swelling for pieces of ribs or any dead tissues, but found only blood-clot and the part bled freely, probably from the subcutaneous vein.

After clearing out the cavities, I packed them with cotton saturated with a solution of copper sulphate, zinc sulphate, and lead acetate, one ounce of each to a quart of water. My thoughts at that time were, that an astringent and caustic would stop the hemorrhage, which it did in a few minutes, and also cause some slough, and in that way reduce the enlargement. The horse was led home and brought to me again in a few days and the swelling was reduced in size. The owner said the horse had been failing and becoming useless and was not improving. I removed the cotton packing and

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, January 14 and 15, 1903.

cleansed the cavities, and filled in again with cotton and the solution. He was brought again in a few days, seeming a little better in spirits, but the parts affected and his breath were giving off a sickening odor. He was left in my care, and I washed the cavities daily and injected the solution and packed, but the horse would not eat much of the grass and oats offered him and weakened so, that I sent word to the owner to take him home before he died. When the owner arrived next morning the horse was dead, and we made an arrangement with a man to take the carcass out and take off the hide and let us examine the seat of the difficulty.

We found a mass of tissue being formed around an opening into the thoracic cavity where three ribs had been broken in. I removed one piece of rib three inches in length which was lying loose. The other parts were crumbled to small pieces and some pus was found in the cavity. A thickened membrane was formed to protect the lung, and the lung itself was discolored and hardened along its lower border, which I believe accounted for the heaves or broken wind condition. If there had been an operation and a thorough clearing of the lesion at a proper time, could it have resulted in relief to the patient?

THREE CASES SHOWING THE USE OF OIL OF TURPENTINE IN THE TREATMENT OF ATROPHY OF THE SHOULDER MUSCLES.[1]

By W. A. Heck, V.S.

Case I. Small bay mare, six years old, was injured in May, 1900, by pulling a heavy load of corn up a steep hill. The right scapular muscles began to shrink soon after and there was decided lameness. Oil of turpentine was injected at intervals of three inches into the scapular muscles and the animal turned to pasture. Three weeks later there was not much improvement and the injections repeated. Six weeks later no improvement was visible. It was decided to wait a little longer and allow the mare to run in pasture. Early in September she was caught up and the shoulder seemed to be a trifle improved, which indicated to me that nature was restoring the muscles without artificial aid. The turpentine injections were repeated. Next day the animal was unable to go out of the barn owing to stiffness and swelling of the scapular muscles, the swelling extending down the limb to the knees. In three days the soreness and swelling disappeared sufficiently for the mare to be turned into a paddock, and she was put to light driving in a week: was used to buggy daily thereafter, and the swelling never went out of the shoulder enough to lead anyone to suspect that the animal had ever been "sweeneyed." The injections were made by simply putting a twitch on the nose and using no antiseptic precautions whatever, except to have the hypodermic syringe and needle afterwards sterilized. At last injection a small abscess formed, and when opened about five drachms of pus escaped. No treatment was given the abscess and the wound healed in a few days.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, Grand Rapids, Iowa, January 14 and 15, 1903.

CASE II. Young, black mare, weight 1000 pounds, was brought in fifteen miles to be treated for atrophy of both shoulders. The mare was "sweeneyed" plowing for corn. Both shoulders were injected at close intervals, using half a drachm in each side. Instructed the owner to take her home and turn her into pasture, and informed him that the next day the animal would be swollen some, but that we would have no good results if we got no swelling and cautioned him not to get frightened. Here let me say that it is always necessary to explain to the owner the conditions we may expect in a day or so after the injections. I advised the return of the animal in three weeks for a repetition of the treatment. According to promise, the animal was returned in three weeks, and to my agreeable surprise no treatment was necessary, as the muscles had so nearly filled that I thought there was no need of further treatment. This was a bad case, one of the worst I have ever seen, and the injury had been done only a couple of weeks. No antiseptic precautions were taken, and no abscesses resulted. The client was so well pleased that the following year he brought two more horses to be treated for scapular atrophy.

CASE III. The third subject was a fine, young, bay express horse, purchased for shipment to Chicago market, suffering badly at the time of purchase from scapular atrophy, but, being such a nice horse, the buyer bought him and turned him over to me for treatment. I injected both shoulders, after washing the parts well with a strong solution of creogen, using about half a drachm of oil of turpentine in each shoulder. In about three weeks the shoulder was very much improved, in fact it was nearly well. The owner said to me, "He needs only a small dose just to fill the parts, and before the swelling goes out I will ship him." Accordingly, I sterilized my instruments, scrubbed the shoulders well with creogen solution and injected about one-half the former dose. The horse resisted a good deal, and after the injections seemed in great agony, lay down in the stall and kicked and rolled and in a few minutes was covered with perspiration. The shoulder swelled fearfully. In four days abscesses appeared at each point of injection; I think not a single point escaped. These abscesses were opened and syringed daily, and healed in a few days, but the muscles did not fill as satisfactorily as with the former injection. Six weeks have elapsed and still the shoulders are somewhat shrunken, and the owner is afraid to repeat the treatment, and I, myself, am nearly so, and he is such a fine horse I hesitate to apply a counter-irritant to the parts.

These three cases illustrate the success I have had with this therapeutic agent in these troubles, and, until I find a better treatment, I shall continue to use it.

Blood for Horse Food. During the past year the military authorities at Strassburg have been feeding a new food product to the horses of regiments stationed there, the experiment having resulted satisfactorily. This food consists principally of steam-dried, sterilized blood from the slaughter-houses, and is mixed with grain hulls, the husks of peanut kernels and molasses, and is sold in bags of 165 pounds at $2.75 per bag at retail. At the present time the demand for this dried blood-meal preparation is far greater than the daily capacity of the factory, the blood of the 300 cattle slaughtered every day in Strassburg not being sufficient; and if the German Government should adopt this food for all army horses, as seems not improbable, the company will be confronted with the necessity of establishing many new factories. In introducing this new feed it is advisable that the change be made gradually, until about half the old quantity has been cut off and replaced with from three to six pounds of the blood meal.

The following extract in regard to the work of the State Veterinarian of Pennsylvania show how it has impressed the Governor, Hon. Wm. A. Stone, and the Secretary of Agriculture, Prof. John Hamilton:

I desire to call attention particularly to the valuable investigations and discoveries made by the Veterinary Division, whose efforts to stamp out infectious diseases among live-stock have been most extensive and successful.—[From the Annual Message of the Governor to the Legislature, January 6, 1903.]

EDITORIALS.

AMENDMENTS BEFORE THE MICHIGAN LEGISLATURE.

The following amendments have been offered to the bill pending before the Michigan Legislature. 1. That all persons appointed upon the Board must be graduates from colleges which are recognized by the A. V. M. A., residents of this State, and citizens of the United States. 2. That all colleges having a curriculum of three years of six months each, and conducted under the rules of the A. V. M. A., shall be recognized, and their graduates shall be registered upon presentation of a diploma which has been issued to the applicant.

We are informed that those amendments were opposed by some of the veterinary profession of Michigan, and we are at a loss to understand why this should be. If the profession of Michigan are still of the opinion that aliens should be allowed to register without becoming citizens of the United States, and hold positions on State Boards, we are quite sure that they will find the profession of the United States a unit against such a state of affairs. If they are opposed to the standard of qualifications adopted by the A. V. M. A. for its membership requirements they are equally opposed to higher veterinary education, and the profession of this country are entitled to know what the Michigan veterinarians stand for.

BUREAU OF ANIMAL INDUSTRY.

The many changes of advanced salaries to those on the veterinary staff as announced in this number is a gratifying evidence of the Department's disposition to retain the best services possible in this work. The marked advance in all salaries accorded to veterinarians over those of five or more years ago, marks the progress and appreciation of the work so well performed for the people generally, that we look forward to this department as the one that will lead in true scientific progress and development.

THE PASSING SHADOW.

The closing of the six months' colleges affords an opportunity for the profession in general and the veterinary organizations over the land to review the work done by those institutions. We are sure that in some the course during the past year has not been all that it should have been, and that we are suffering to-day from too many schools which rob those whose facilities and equipments are good of that support to which they are entitled. It is a loss to the student fraternity, to the profession, and to future clientages who must suffer serious losses while an imperfect education is being completed. The time has come when post-graduate courses must be given in the colleges, the State Veterinary Boards must draw their lines closer and closer, and the Associations must stand firm in the demand for better work by all of our colleges.

THE JOURNAL regrets to announce its inability to make satisfactory arrangements to place our Association Proceedings Department under the direction of Dr. John J. Repp, as previously announced. All records of society proceedings and notices of meetings will be sent as usual direct to the JOURNAL office. We also wish to state that this department in the issues for 1903 were directed from the JOURNAL office.

BUREAU OF ANIMAL INDUSTRY.

PROMOTIONS OF VETERINARIANS DURING THE YEAR 1902.

From $2250 to $2500: Dr. John R. Mohler, Chief of Pathological Division, Washington, D. C.

From $2000 to $2250: Dr. O. E. Dyson, inspector in charge, Chicago, Illinois.

From $1400 to $1600: Dr. Joseph B. Clancy, National Stock Yards, Illinois (placed in charge of station).

From $1400 to $1500: Drs. Leslie J. Allen, Oklahoma City, Oklahoma; Thomas Castor, Trinidad, Colorado; C. H. Davies, Kansas City, Kansas; Charles M. Day, Sidney, Iowa; H. H. George, Kansas City, Kansas; A. A. Holcombe, Aurora, Illinois; G. A. Johnson, Sioux City, Iowa; W. H. Smith, Jr., Chicago, Illinois; Walter J. Stewart, Chicago, Illinois; B. P. Wende, placed in charge, Buffalo, New York.

From $1200 to $1400: Drs. H. M. Ball, Buffalo, New York; H. M. Batchelder, South Omaha, Nebraska; E. L. Bertram, Chicago, Illinois; Herbert Caldwell, Milwaukee, Wisconsin; E. T. Davison, placed in charge, Rushville, Nebraska; Arthur R. Glaisyer, Spokane, Washington; Joseph M. Good, inspector in charge, Dayton, Ohio; John S. Grove, Kansas City, Kansas; H. J. Hammond, Amedee, California; John J. Hayes, Chicago, Illinois; Daniel S. Hays, Boston, Massachusetts; R. W. Hewett, Philadelphia, Pennsylvania; John B. Hopper, New York City; George T. Irons, South St. Paul, Minnesota; Raymond Johnson, South St. Joseph, Missouri; Louis A. Klein, Fort Worth, Texas; Clarence Loveberry, inspector in charge, Seattle, Washington; Albert Long, Boston, Massachusetts; Frank C. McCurdy, South St. Joseph, Missouri; Monroe B. Miller, New York City; George Byron Morse, Washington, D. C.; B. W. Murphy, Jr., South St. Joseph, Missouri; Wesley N. Neil, inspector in charge, Waterloo, Iowa; Isaac W. O'Rourke, Reno, Nevada; James L. Otterman, Kansas City, Kansas; Charles F. Palmer, Indianapolis, Indiana; John O. F. Price, National Stock Yards, Illinois; Henry Roome, Sioux City, Iowa; H. R. Ryder, Buffalo, New York; William G. Shaw, Nogales, Arizona; Daniel G. Shumway, South St. Paul, Minnesota; John A. Sloan, South St. Joseph, Missouri; Herbert M. Smith, Louisville, Kentucky; Nathaniel B. Smith, Billings, Montana; F. L. Stevens, Boston, Massachusetts; A. W. Swedberg, Kansas City, Kansas; Joseph J. Thackaberry, New York City; Norris L. Townsend, Helena, Montana; A. H. Wallace, San Antonio, Texas; Thomas White, Douglas, Wyoming; Alexander E. Wight, Boston, Massachusetts; Warner W. Worcester, Des Moines, Iowa.

ANTIRABIC INOCULATION IN COLTS. Among a lot of 47 colts Kurtz and Anjezky, of Budapest, found two which showed characteristic symptoms of rabies, and died in a few days. Examination showed that in seven others small scars were found on the body; these were suspected as being infected from bites, although there was no other positive evidence. Two days afterward one of the seven died of rabies.

The 44 colts were submitted to antirabic inoculation with a virus prepared at the Pasteur Institute of Budapest after the method of Hoegyes. Three inoculations were made under the skin of the neck at intervals of five and two days. There was no hyperthermia nor any other indication of any reaction, and the animals remained in perfect health, and six months afterward no rabies had recurred.

This is the first time antirabic inoculations have been made in veterinary medicine, and they seem to be efficacious when made in time.—*Deutsche Thier. Wochen.*

NOTES.

The profession in France is to have the support of another veterinary periodical under the name of the *General Review of Veterinary Medicine.* Professor M. E. Le Clainche, of the Toulouse Veterinary School, will edit the new journal.

The Berlin (German) Society for the Prevention of Cruelty to Animals gave a banquet to some six hundred guests, the meats for which were from some sixty well-groomed and oats and clover-fed horses.

Bulletin No. 64 of the Florida Agricultural Experiment Station covers the subject of Texas cattle fever and salt sick, by Dr. Charles F. Dawson, Veterinarian to the Station.

WILL GO TO INDIA. Brigadier-general Theodore J. Wint, in the Philippines, has been ordered to proceed to such points in British India as may be necessary to make a careful and exhaustive study of surra and other infectious diseases of horses and mules, and of the proper forage for such animals in tropical countries, giving particular attention to those localities where climatic conditions and vegetation are similar to those in the Philippine Islands, and upon return journey he will visit Batavia, Java, to study kindred subjects. Gen. Wint will be accompanied by Major R. D. Potts, Artillery Corps, and an aid-de-camp.

Where does the Veterinary Corps come in?

ST. BERNARD DOGS. A New England mill-owner allowed his pet St. Bernard to sleep in the office, quite near his house, says a writer in *Country Life in America.* As he unlocked the door one morning he heard a low growl, and there stood the dog over the prostrate body of a man. As the mill-owner approached the man tried to arise, but another warning growl made him drop back, ejaculating: "For God's sake, call off your dog! He's been standing over me four hours." Burglar tools lay beside him. He was unharmed and so was the safe.

A lady who was going on a long journey one summer left her "Brenner" in the care of a livery-stable keeper, a friend who knew and loved the dog. Brenner was a very quiet and unobtrusive fellow, careful to keep out of the way, yet always near at hand. So quiet was he that strangers thought him cowardly, and many times he was shoved about by teasing human bullies—just to see what he would do. Brenner took all their rough jokes in good part until one day after his toes had been trodden on repeatedly by his chief tormenter. Finding it apparently impossible to provoke the dog, the bully turned upon the stable-keeper and began wrestling with him. Up sprang Brenner like a tiger, and, pushing his great body between the men, he forced them apart. Then, erect upon his hind legs, he put his forepaws upon his enemy's shoulders and uttered just one growl. That was enough. His toes never suffered again.

A two-months-old pup, by careful observation, learned the connection between the pump handle and his supply of fresh water. When the pan was empty and he felt thirsty he would seize the handle and shake it repeatedly as well as he could. If this proceeding failed to attract the attention of anyone he would take the pan in his mouth and bang it violently against the pump. As he grew older he helped the boys about their farm work—or tried to—and with very little training became a good cattle driver, never annoying the cows by barking in front of them, but following them closely and pushing the stragglers gently to persuade them to rejoin their friends. When the door of the cow barn was opened it was the signal for him to go down the lane to the pasture and bring the cattle home. He was proud of his skill, having been praised repeatedly for it. One blazing July day a chance visitor opened the door. Bravo, lying in the shade, heard and saw. It was hours too early, and he was loath to leave his comfort, but the call of duty must be obeyed, and away he sped. The cows were taking their comfort, too, some resting under the elms, some standing knee-deep in the cool stream. Up they had to come, one and all, most reluctantly surprised and unhappy. Bravo never undersood why he got such a rating that afternoon.

No other breed of dogs is more adaptable to changing conditions. Give him his friends and he is happy, whether hemmed in by the limitations of a city flat or free to roam over a hundred acres.

INCREASE OF PNEUMONIA. The undoubted decline in the mortality from consumption may be traced to the greater care exercised by the patients and those who have charge of them to avoid everything known to favor infection. Owing to the instructions which have been widely distributed by health officers most victims of this malady are provided with covered cups for the sputa, which is destroyed by burning. Formerly no pains were taken to prevent the sputa, crowded with germs, from drying and thus filling the air with the seeds of the disease. It is because consumption, while communicable, is not an acute infectious ailment that its ravages were not vastly greater than when so little was done to limit its spread. Probably the decline in the percentage of deaths is due far more to these precautions than to any new methods of treatment.

Pneumonia, however, has shown an increased mortality during the time that the deaths from tuberculosis have diminished. The people have been slow to realize the highly infectious character of pneumonia. The germs are in the air, and it needs only a favorable opportunity for them to develop rapidly. The vital statistics of the Census Bureau are not regarded as accurate, but they indicate the tendency. In 1880 the deaths from pneumonia for each 10,000 of population (for the whole country) were 12.56, while in 1900 the rate had increased to 13.49. At the same periods the deaths from consumption decreased from 18.21 to 14.44 for each 10,000 of population. The health officer of Chicago reports a more alarming increase of mortality in that city from pneumonia—an increase of 350 per cent. in forty years.

In street cars, theatres, and all public buildings persons with "colds" who clear their throats do not hesitate to expectorate in cuspidors or on the floors, and in many cases they set free the germs of pneumonia. A man in perfect health who is care-free may easily escape the danger of pneumonia, but another whose vitality is low and who is depressed by business or other cares may prove a ready victim to the germs in the air. There is no reasonable doubt that a thorough system of ventilating all places where people gather and a more rigid enforcement of the rules against spitting in public places would tend to reduce the mortality from pneumonia. At this season persons cannot be too careful about exposing themselves to bad weather when they are weary or depressed.

The veterinary students of the University of Pennsylvania attended in large numbers the social Christian gathering in February. Addresses by Drs. S. J. J. Harger, M. G. Brumbaugh, J. C. McCracken, and W. Horace Hoskins were listened to attentively. Some of the veterinary students are deeply interested in the Christian settlement work of the University.

The home of Dr. M. E. Knowles, of Helena, Montana, was quarantined for many weeks during the winter from an outbreak of scarlet fever among his family.

SOCIETY PROCEEDINGS.

IOWA STATE VETERINARY MEDICAL ASSOCIATION.

OFFICIAL REPORT OF THE PROCEEDINGS OF THE FIFTEENTH ANNUAL MEETING HELD AT CEDAR RAPIDS, IOWA, JANUARY 14, 15, 1903.

FIRST DAY—*Morning Session.*

THE meeting was called to order at 10 A.M. in the rooms of the Commercial Club by the President, Dr. J. I. Gibson, of Denison.

The Secretary announced the system of card registration instead of roll-call.

The address of welcome was made by Mayor C. D. Huston, of Cedar Rapids, as follows:

MR. CHAIRMAN AND GENTLEMEN: I deem it an honor as the Chief Executive of the Parlor City to extend the official greetings to the members of the Iowa State Veterinary Medical Association. You are expected to have a good time—the only kind of time observed on convention days in this city when friends are to be entertained. You can go all the gaits if you choose and make a record. In other words, it is a free-for-all and none barred. And, after you have finished your labors and returned to your respective homes, it is our hope that it will be with pleasant recollections of our city and citizens.

We have the biggest city marshal in the entire country, and the most tender-hearted, too. It has been said of him, and it might truthfully be said of some other of us city officials, that in his boyhood days he was so tender-hearted that he never overloaded a "saw-horse;" so he makes a good, humane officer as well as police official. You will be under his special care and protection during your stay, and, should any of your number become lost or strayed, just telephone the city marshal and you will be found—not fined.

Every head of a family in our city is the possessor of a horse of some description. It may be a pacer or a trotter, and, if not one of those, it is sure to be a "hobby" or a "clothes-horse." But they are all interested in the veterinarians. Those who have but a clothes-horse are just as much interested in you gentlemen as the owners of the fine steppers, because they rely upon some one of your number to inspect the milk and butter fats that go into the home for use of the infants as well as the adults, and they look to you to have framed and enforced such laws as are necessary to prohibit the selling or offering for sale of any impure or adulterated foods.

I heard a horse story once—the title rôle being played by a mule. An Englishman came to this country for a hunt, choosing Missouri as the base of operations, presumably for the reason that when he returned to London he could say to his friends, "I am from Missouri; you will have to show me." He had as his guide a citizen who had been born near Penobscot, Me., and who had served time in selling wooden hams and watering dried apples. The Yankee had trained a mule so that when he tickled it in the flank it would sit down. They started upon the hunt, and after traversing the road a short distance, the guide touched the mule in the flank and it sat down. "What's the matter with the mule?" inquired the Englishman. "Nothing the matter with the mule," was the reply, "he's a setter; don't you see he is setting that rabbit," as he pointed out bunny who was scampering away. Passing along a little farther the whip was applied to the flank of the mule and it again sat down. The Englishman espied a pheasant, bagged the game, and then opened negotiations for the purchase of so intelligent and valuable an animal. After much dickering the Englishman's fine saddle-horse and trappings and one hundred dollars in coin of the realm were exchanged for the mule. Hunter and guide exchanged mounts and passed on. In a short time they came to a stream of water, and the mule, lagging somewhat, was urged on by the use of the spur, and he sat down. "What's the matter with the mule, now?" roared the Englishman. "Nothing, nothing at all," responded the Yankee, "he sets just as well for suckers as he does for game or birds."

Now, my friends, you may not know it, but it is a fact that you are just six miles from the healthiest city in the United States, according to the last census report, partly due, no doubt, to the vigilance of meat and milk inspectors, who are experienced and respected veterinarians. Marion is the capital of Linn County, and besides being noted as a health resort, is also noted as being the home of several horse-fanciers who are national characters. They will be over here to-morrow, and, with some of our own horse-fanciers, will exhibit a goodly number of beautiful coachers, park horses, single and double drivers, equal if not superior to any you have ever seen.

I am requested by the directors of the Poultry Show, now on at the Auditorium, to extend you an invitation to inspect the magnificent exhibit to be seen there, and no one can afford to miss it.

The great cereal plant, which furnishes breakfast for the world, and the biggest institution of the kind in the world, is worth a visit, as is also the Sinclair packing plant. Besides numerous other industries we have three of the largest pump factories in the West, which furnish our city wind and the population of the entire northwest with pumps and pipe—and this is no pipe-dream, either.

Then our business men want to give you the glad hand and make your stay so pleasant that you will certainly desire to, if you do not actually vote to make Cedar Rapids your permanent headquarters for all your State meetings.

Response to the address of welcome was made by Dr. J. I. Gibson.

The President delivered his address, as follows:

MR. VICE-PRESIDENT, OFFICERS AND MEMBERS OF THE IOWA STATE VETERINARY MEDICAL ASSOCIATION: I greet you at this fifteenth annual meeting, and wish you all the compliments of the season.

As each new year in the history of our Association is ushered in it brings to us and our profession new obligations and greater responsibilities. We live in an age of wonderful progress. The world is rapidly growing brighter and better. New methods are constantly coming in vogue in all commercial and professional pursuits. We discard many of the best methods of our fathers as worthless or impracticable. In this double-quick onward march of twentieth century civilization I trust our profession may always be found occupying a position in the foremost ranks.

The Past and Present.—It is amusing as well as instructive to compare the conditions of fifty years ago with those of the present time. How ridiculous some of the methods of those times appear when viewed in the light of the present. Few if any of the live-stock owners of to-day would permit a veterinarian to apply the plank-and-sledge-hammer treatment to a case of "lock-jaw," or the gimlet and turpentine to a case of "hollow-horn," or the knife and pepper and salt to a case of "wolf in the tail," or to introduce into the mouth of a ruminant a pork-rind or other artificial cud to relieve the patient and reinstate the suspended process of rumination. And yet the older citizens recall the time when the above-mentioned methods were very generally practised. Nowadays the owner of live-stock requires of the veterinarian better medical and surgical treatment of his animals than the medical profession was qualified to practise upon his grandfather. The improved and finely-bred animal of to-day requires much more humane and scientific treatment than did his coarser-bred ancestors. The breeder of to-day possesses a much larger fund of knowledge concerning the principles of breeding and feeding than did his fathers.

Veterinary medicine and surgery have made wonderful progress in the past fifty years. The medical profession has made, I might say, greater advancement in the past fifty years than our profession. It seems almost incredible, but it is nevertheless a fact, that asepsis and the use of antiseptics were neither known nor understood by the medical profession of fifty years ago. The army surgeons during the War of the Rebellion used a solution of potassium permanganate for the cleansing and healing of wounds, and found it an apparent aid to the healing process, but they did not know how or why it was. Some of them were particular to have and use clean instruments from a natural tendency to cleanliness, while none of them knew or understood the necessity for or the theory of sterilization of hands, instruments and all appliances and surroundings in order that good results might attend all their efforts in surgery. They looked upon suppuration and sloughing as indications of healthy progress in all wounds, but to-day if suppuration follows surgical interference, it is at once positive evidence of septic infection or lack of sterilization and is invariably charged to the negligence or carelessness of the operating surgeon or his assistants.

Aseptic results may be, and frequently are, attained at the present time in veterinary surgery, notwithstanding the fact that the surroundings favor the infection of all wounds in our patients, but fifty years ago such results were accidental in connection with human surgery and entirely beyond the conception of the human surgeon.

The older surgeons of to-day tell us they distinctly remember how their professors warned them against entering the peritoneal cavity, with the assurance that it meant almost certain death to the patient, but these same surgeons have found it necessary scores and hundreds of times to ignore the teachings of their college days, and have in so doing saved many lives that would certainly have been lost had they treated the patients as taught by the learned professors of but a generation past.

In the field of sanitation and prevention of disease the advancement has been even greater than in the art of healing. When I was a boy the people feared smallpox, diphtheria, and scarlet fever more than they now dread the so-called plagues—cholera, bubonic plague, and yellow fever; and well they might, for in those days, in the mildest outbreak of smallpox, the death-rate was about 25 per cent., as compared with 1 per cent. in recent outbreaks. In those days diphtheria very often proved fatal to whole families, while to-day 95 per cent. of diphtheria patients recover. In the treatment of these two diseases we have modern specifics, viz., vaccine and antitoxin. The thorough and systematic vaccination of a people, young and old, will, in a few generations, make that people immune to the virus of smallpox, and yet there are people abroad in our land who condemn and attempt to ignore vaccination. They are like the infidel born in a Christian land and reared by a godly mother.

Vaccination belongs to the practice of our profession to as great an extent nowadays as it does to the medical profession. Through vaccination and inoculation with immunizing serums we protect the owners of live-stock from greater losses than through all other lines of treatment and practice. We do not hesitate to assure the owner against losses from anthrax, black-leg, tetanus, Texas fever, malignant œdema, and, through the good work now being done by Drs. Pearson and Gilliland, of Pennsylvania, we hope soon to be able to assure him against loss from the spread of tuberculosis. This antituberculosis vaccination when perfected will prove the greatest blessing ever conferred upon the live-stock owners of the country, as well as a safeguard to human life. We wish these gentlemen final success in this great work for the protection of animal life and the preservation of the public health.

We noticed recently the announcement by a French scientist of the discovery of an anti-whooping cough serum, which he asserts will reduce the course of the disease to a period of not longer than one week, and prevent all spasms and paroxysms. This, if true, is one of the greatest blessings ever conferred upon mankind, especially in infancy. When we stand aside and view the rapid progress made year after year we are led to believe that nothing that can be imagined is too difficult to be brought to pass.

The Future of the Profession.—We might ask, What has the future in store for us and our profession in the State and nation? I feel assured that the signs of the times indicate marked advances for the veterinary profession in the near future. The great increase in the production of pure-bred stock of all breeds in the country (in which Iowa leads all other States) means a proportionate increase in the demand for qualified veterinarians. The breeder of pure-bred stock requires more of his veterinarian than does the owner of common scrub animals. He not only requires that he shall be well qualified to administer the best medical aid and to perform the most scientific surgery, but further, that he shall be qualified to instruct and to advise as to the best methods of breeding and feeding, and all other things pertaining to animal husbandry.

With all the recent improvements in the courses taught in veterinary colleges I sometimes fear the veterinarians of to-day are not fully equipped to meet the demands now made upon them. It seems to me our colleges should take the initiative in the matter and at once establish thorough courses in animal husbandry and live-stock judging. These branches properly belong to veterinary science, and every veterinarian should be expert in them. The natural tendency on the part of the breeder and feeder is to go to his veterinarian for all advice and counsel pertaining to the best methods of breeding and feeding; and the veterinarian should be qualified to advise him in the way that will bring the best results. He should also be master of the science of breeding, and able to select the proper sire and dam to produce the desired progeny.

There is an increasing demand for this kind of veterinarians to superintend breeding farms throughout the country. How many of the veterinarians present are owners and breeders of pure-bred stock of any breed or species? Every one of you should own and breed some choice animals, and thus by practical example prove your fitness to advise others in breeding.

The judging of live-stock, which is naturally the work of the veterinarian, has been of late years in this country conceded to the professors of agriculture and animal husbandry and their graduates. Many of these men are, indeed, experts, but none of them have the advantages that accrue to the veterinarian in this work on account of his thorough knowledge of the formation and function of all parts of the animal. The veterinarian in all countries excepting the United States is recognized as the proper person to judge in the show ring, and is generally made chief judge or referee at live-stock exhibitions. I for one am in favor of the judging clinics at our meetings and a course in judging at all our colleges, and the final reinstatement of the veterinarian as judge in the show ring.

Veterinary Sanitation.—I feel that I cannot emphasize too strongly the importance of veterinary sanitation: first, as it applies to the protection of the life and health of our domestic animals; and, secondly, on account of its effect upon human life and happiness. Just now we are confronted with a serious problem in the introduction within our borders of one of the cattle plagues of Europe—foot-and-mouth disease. If our fair State should become infected with this disease it would mean a loss of millions of dollars to our people. Why are we resting so peacefully under these circumstances? Because Uncle Sam's army of veterinary sanitarians, under the command of that peerless general, Dr. D. E. Salmon, Chief of the Bureau of Animal Industry, has promptly met the foe and thrown its invincible lines around the enemy, and is waging a war of sure and speedy extermination. For this reason we are not fearing the invasion of our State by the dread disease. As a result of organized veterinary sanitation in States and nation all contagious and infectious diseases of animals are on the decrease.

The greatest problem in veterinary sanitation yet before the civilized world is the eradication of tuberculosis from our herds. It is well for our country that the determination to control tuberculosis has become so marked before the disease gets the foothold here it has in European countries. The discovery of the antituberculosis vaccine should prove the greatest aid to the control of the disease yet known. Its use will protect all additions to an infected herd by birth or purchase and make the final purification of the herd much easier than any other method suggested. If it proves a success the names of Pearson and Gilliland, its first advocates, will be immortalized in history.

In conclusion, I wish to congratulate the members present on the high position this Association occupies in the list of State associations, and especially on the election of our Secretary at the Minneapolis meeting to the position of Secretary of the American Veterinary Medical Association, which gives this Association additional prestige in the national and international affairs of the profession.

I request of each of you a renewed spirit of loyalty to our Association and all its interests, and wish you all health, happiness, and success throughout all future years.

The Secretary read his report, as follows:

SECRETARY'S REPORT.

MR. PRESIDENT AND MEMBERS: There has been encouraging progress in Association affairs since our last meeting.

Correspondence with the members indicates a commendable interest in the welfare of our organization and in the profession as a whole. The members have been prompt in responding to requests for assistance in getting up a programme, and in otherwise preparing for the meeting. A hopeful feeling has been generated by the prosperous state of veterinary practice, and attention to business has, fortunately, not led to such narrow and selfish views on the part of the members as would cause them to neglect or shoulder upon others the broad interest of the profession at large, the interests of which can be cared for only by such an organization as ours. It is evident to me that our members are almost without exception thoroughly awake to the great benefits which they may derive personally from their membership, and to those which are bestowed upon the profession at large through the influence of our State Association.

The work of the Secretary is considerable in amount and exacting in character, but I have been much gratified by seeing on every hand a reward in the form of good results from labor bestowed.

We now have an active membership of 74. Only 5 of these have allowed themselves to fall into arrears in dues beyond the limit set by the By-laws. The remainder have manifested their interest in the affairs of the Association by ready payment of dues. Collections have as a rule been very satisfactory. Inasmuch as the annual dues are so small, and as it is manifest that the Association requires all the money it can raise through legitimate means for its operation, it is cause for wonder that members should allow themselves to fall into arrears so far as to make them subject to suspension. If a member has not been able to sustain his interest in the Association, the logical and proper thing for him to do would be to submit his resignation and thus free himself from all obligation. Those who are in arrears have been notified three times within the last six months and the consequence of continued delinquency has been detailed to them. There is nothing left for me to do but advise that they be suspended from membership for non-payment of dues.

I would call attention to the fact that it is the policy of the Association to put upon the list of honorary members not subject to dues any members who may remove from the State, or who may go into some other honorable profession or business, provided they are in good standing at the time of cessation of active membership and their dues are paid up. It is very much desired that members thus making a change will keep the Secretary informed in regard to it so that the Association may take appropriate action.

At the last meeting of the Association 36 members were suspended for non-payment of dues. These delinquents had accumulated during a period of ten years, and it was thought the interests of the Association demanded that such action should be taken. The Secretary was directed to send a letter to each one of these, apprising him of the action taken and enclosing a statement of account. This was done at two different times in the cases of 23, whose whereabouts could be ascertained; the remainder either had died or their addresses had been lost. One of the 23 has since died, and of the remaining 22 one has paid up his arrears and asked for reinstatement to active membership. A few others sent replies which will be referred to at another time. Of 39 others who had been suspended for non-payment of dues during the previous history of the Association, 17 were still alive and their addresses were obtainable. A letter and statement of dues was sent to each one of these on two different occasions. One responded by paying up arrears and asking for reinstatement; two others showed their interest by making replies which will be referred to later. It is wellnigh impossible to get any sort of reply from more than a few of those suspended members, much as it is desired. Unless some action which they may view with more favor is taken by the Association I think it would be justifiable to discontinue efforts to bring them again into relations with the Association.

To every veterinarian in active practice in the State who is not a member, but who is eligible to membership, I sent a letter asking him to submit his application. Up to this time 17 have responded, and others are expected to do so during this meeting. This is very encouraging; but still there are about sixty veterinarians in the State who ought to join with us in active membership. It is the duty of every member to see that this result is accomplished, and I hope that a long stride may be taken in this direction during the coming year. I wish all would realize how easy it would be for us to have in Iowa a veterinary association which had developed all the strength which the union of all the veterinarians in the State into such organization would give. Time and space will not allow me to go into detail, as I should like, on this subject, but let us all strive to reach the ideal in regard to membership to which I have just referred.

In the interest of the veterinarians of the State I took up the matter of subscriptions to the veterinary journals. By consulting the subscription lists I found that there were only 68 subscribers in Iowa to one or both of the American veterinary journals. Out of these 68, 22 are non-graduates. In other words, 33 per cent. of the 68 subscribers are non-graduates. This, it must be confessed, is very complimentary to the non-graduates, but not very flattering to the graduates. This left 94 graduates in the State who were not subscribers. A large percentage of these are members of this Association. To each of these an offer of a special subscription price was sent. I am much pleased to say that up to this time 9 have taken advantage of this offer and 3 of these become subscribers to both journals. It is hoped that many more will avail themselves of this offer before it is withdrawn, January 16th. Still, I fear that very, very much will be left to be desired. I should state that one veterinarian wrote me that he is receiving a journal in another's name, and another that he was getting an issue monthly through a newsdealer. I am glad to be able to report that no members have died since our last meeting.

Whether speaking for myself or for my successor, I would request that each member write the Secretary at least one letter each year.

Respectfully submitted,

JOHN J. REPP,
Secretary.

The Treasurer submitted the following report:

TREASURER'S REPORT.

Receipts.		
Cash on hand Feb. 10, 1902, to Jan. 12, 1903,	$66.30	
Cash for dues Feb. 11, 1902, inclusive,	62 00	
Cash for membership fees Feb. 11, 1902, to Jan. 12, 1903, inclusive,.	42.00	
		$170.30
Disbursements.		
Cash refund of membership fee to W. L. Evers,	$2.00	
Cash to H. E. Talbot account Clinic fourteenth annual meeting,	10.00	
Cash refund of membership fee to J. V. Jewell,	2.00	
Cash refund of membership fee to T. D. Hulme,	2.00	
Cash Secretary's allowance,	25.00	
Cash to Secretary for editing and typewriting Proceedings Fourteenth Annual Meeting,	20.00	
Cash to J. Miller for postage,	.53	
Cash for 9 registered letters,	.72	
Cash for letter copy book,	1.50	
Cash for letter copy book,	1.50	
Cash for badges and express on same,	9.25	
Cash for express,	1.20	
Cash for stamps,	18.75	
Cash for printing and stationery to Ames *Times*,	22.25	
Cash for printing and stationery to Hodson Bros.,	5.50	
		122.20
Balance in Treasurer's hands Jan. 12, 1903,		$48.10

Respectfully submitted,

JOHN J. REPP,
Treasurer.

The following committee was appointed to audit the Treasurer's accounts: Drs. J. Miller, J. S. Potter, and Hal C. Simpson.

The auditing committee made the following report:

We, the auditing committee for the fifteenth annual meeting of the Iowa State Veterinary Medical Association, hereby certify that we have examined the above account of the Treasurer, and that we find it correct.

HAL. C. SIMPSON,
J. S. POTTER,
J. MILLER,
Auditing Committee.

By vote of the Association the report was accepted.

The President appointed A. A. Adamson a member of the Board of Censors in place of W. H. Austin, who was absent.

The Board of Censors reported favorably upon the following applicants for membership: Robert J. W. Briggs, Garner; F. H. Thompson, Des Moines; F. R. Ahlers, Lamotte; C. O. Van Winkle, Salem; A. F. Baldwin, Des Moines; C. J. Heckard, Wheatland; Gustave A. Kay, Avoca; Walter A. Stuhr, Ames; A. L. Wood, Hampton; O. R. Moyer, Cedar Rapids; F. N. Elwell, Bancroft; S. P. Talbot, Oskaloosa; C. A. Bradley, Marion; J. Brodie, Cedar Rapids; D. Barrett, Cascade; L. L. Diller, Grundy Centre; G. W. Blanche, Belle Plaine; J. E. Frank, Sandyville.

Report of Board of Censors was received by vote.

On motion, the rules were suspended and the Secretary instructed to cast the ballot of the Association for those whose names were read. This was done, and the President declared them duly elected.

The Board of Censors reported favorably upon the following for reinstatement to active membership: J. W. Scott, Manchester; J. E. Harrison, Burlington; J. G. Parslow, Shenandoah.

The report of the Board of Censors was received by vote.

On motion, the rules were suspended and the Secretary instructed to cast the ballot of the Association for those whose names were read. This was done, and the President declared them duly reinstated.

Dr. T. A. Shipley, Inspector Bureau of Animal Industry, invited the members to visit the Sinclair Packing Plant between 1 and 2 P.M.

Mr. Thos. H. Simmons, Secretary of the Commercial Club, invited the members to attend the Poultry Show, admission to be secured by the badges.

Adjournment for lunch at 12 M., to meet at 2 P. M.

Afternoon Session.

Meeting called to order at 2.30 P.M. by President Gibson.

The Committee on Disease and Treatment reported as follows:

REPORT OF COMMITTEE ON DISEASE AND TREATMENT.

Your committee beg leave to report briefly. We have nothing new nor startling to offer, but only a review and a few minor suggestions, and hope our effort may be the means of bringing out a good discussion if nothing more. Throughout our State domestic animals have enjoyed particularly good health. There has been no general epizootic. Many localities have been visited by local diseases of different kinds, but they were soon brought under control. Probably we have had more ergotism than for several years past owing to the excessive moisture, rank growth, and lack of sunshine. Almost every pasture was more or less affected; especially was the ergot abundant on the blue grass, red top, and similar grasses.

There was a great deal of enzootic ophthalmia among cattle, especially in the southern part of the State. The loss to stockmen comes principally from shrinkage of animals affected. Treatment is impracticable, especially in large herds.

Rabies has been quite common during the year just closed. We are of the opinion that if farmers would enforce the trespass law throughout the State and prohibit hunting on their farms and in the public highways, the different breeds of hounds and hunting dogs would soon diminish. Then, instead of the general fifty-cent tax, put on a tax so high that only the very best dogs would be worth keeping, and as a result we would soon have the periodical attacks of rabies reduced to a minimum. This means of handling rabies would be beneficial to the sheep interests of the State.

There seems to be very little trouble in feeding cornstalks this year. Why is this? Is it due to the rank growth of the stalks, the excessive moisture, the large amount of grasses along fences and ravines, and abundance of water in every ditch?

There has been considerable sheep-scab in the sheep-raising districts, but sheep-owners do not talk much of this disease when they get it. Almost every farmer who owns a flock worthy the name is prepared to handle this disease, as he has convenient dipping tanks, while any of the Government dips will eradicate the trouble if directions are followed.

We have had the privilege of examining several flocks of sheep which were shipped in that developed scab of the worst form after being inspected and dipped at the dipping stations on entering the State, and know of many more where no veterinarian was called. The best plan is to advise feeders to buy natives, even at a little higher price, as their profits would be more in the end and more satisfactory.

Tuberculosis is a disease that probably none of us will ever see blotted out of our State. Our interstate laws and regulations seem to be insufficient to cope with this or sheep-scab, as the outbreaks seem to be more frequent where either cattle or sheep are imported into the State from the ranges. Perhaps the Bang method is the only practicable method of combatting this disease without entailing too great a hardship on the stock-owners.

Hog cholera is prevalent in a few sections, but not nearly as much so as in former years of bumper corn crops. There are large areas in Southern Iowa and Missouri, where land has been farmed for over sixty years, and hogs have been raised almost continuously, where they never had hog cholera or swine plague. Is it due to mineral deposits, the water, or the blue grass pasture and mast in their pastures? If not, why? Speaking of radical cures for a stock evil, a very successful sheep-breeder remarked to us once that the only way to make a success of the sheep business was to buy the best long-range gun possible, load shells heavily with buckshot, shoot so that there will be no report or howl, only that of the gun, and keep your mouth shut. The report was fully discussed.

The Judiciary Committee made the following report:

REPORT OF THE JUDICIARY COMMITTEE.

We, the Judiciary Committee of the I. S.V. M. A., after a careful inquiry, find that Dr. S. H. Johnston, of Carroll, Iowa, a member of this Association, has been guilty of non-professional conduct in that he has assisted in instituting and promoting a corresponding school of veterinary science for the express purpose of teaching veterinary science to farmers, breeders, and non-graduate veterinary practitioners. We, therefore, recommend that he be expelled from membership in the Iowa State Veterinary Medical Association.

J. I. Gibson,
J. R. Sanders,
P. Malcolm,
Wm. Drinkwater,
John J. Repp.

The report was adopted.

On motion, Dr. S. H. Johnston was expelled from membership in the Association by a unanimous rising vote.

New business was then taken up.

The resignations of T. A. Bown, Chariton, and M. Y. Schaffer, Des Moines, were accepted.

On motion, it was voted to receive applications for reinstatement to membership from all those suspended for non-payment of dues, provided they pay the sum which they were in arrears at the time when they were made subject to suspension according to Article IV. of the By-laws.

Dr. Bauman reported the following cases: "Rupture of Rectum and Vagina in a Mare during Parturition; Successful Treatment." "Obstruction of Bowels in a Horse Due to Abscess in Lumbosacral Region."

Adjournment was taken at 6.30 P.M. to 7.30 P.M.

Evening Session. The meeting was called to order at 8 P.M. by President Gibson.

Dr. S. H. Bauman presented a paper entitled, "Observation on Country Practice."[1]

Dr. J. W. Scott presented a report of a case entitled, "Embolism of the Pulmonary Artery in a Horse."[2]

Dr. Sanders read a report of "Three Anomalies Met with in Castration."[3]

Dr. Drinkwater read a report of "Fracture of the Ribs in a Horse."[4]

Dr. A. S. Brodie read a report upon "Five Cases of Azoturia."[5]

Dr. Malcolm made an extemporaneous report of an "Autopsy on a Calf."

Dr. McLeod read the following reports:

"The Use of Antistreptococcus Serum in Purpura Hemorrhagica."[6]

"Results of Four Operations for Cribbing."[7]

SECOND DAY—*Morning Session.*

CLINIC AND JUDGING.

The clinic was under the supervision of Dr. J. W. Griffith, assisted by Drs. T. A. Shipley and O. R. Moyer. The following operations were performed: Castration of cryptorchid, Dr. G. A. Scott, Independence; stringhalt, Dr. F. F. Parker, Oskaloosa; cribber, Dr. J. H. McLeod, Charles City; oöphorectomy on bitch, Dr. J. H. Potter, Iowa City; trephining for removal of tooth, Dr. J. W. Scott, Manchester; canker of foot, Dr. E. A. Buxton, Vinton; oöphorectomy on bitch, Dr. W. A. Heck, Maquoketa; castration of cryptorchid, Dr. C. E. Stewart, Chariton; oöphorectomy on bitch, Dr. J. H. McLeod, Charles City.

Dr. G. A. Johnson gave a demonstration in connection with some pathological specimens collected at the Sinclair Packing Plant by Dr. T. A. Shipley. The specimens were as follows: Tuberculosis of liver of ox, multiple abscess of liver of ox, cryptorchid testicles from swine, parenchymatous mastitis of cow, cystic ovaries from sows, generalized tuberculosis of hog, cholera of hog, fibroma of larynx of cow.

An exercise in horse judging, arranged by the local committee, took place between 11 and 1 o'clock. Five classes were exhibited. The members first judged the horses, and each selected what he considered the best. Then a committee, consisting of Drs. J. I. Gibson, P. O. Koto, and H. E. Talbot, made the final decisions. The following were the winners in the respective classes:

Draught Team. First, Standard Oil Company; second, J. H. Stein Transfer Company.

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[1] See page 144.

[2] See February number, page 106.

[3] See page 164.

[4] See page 168.

[5] See February number, page 109.

[6] See page 166.

[7] See page 167.

Carriage Team for Action. First, W. A. Dobson; second, H. R. Shafer.

Carriage Team for Conformation. First, W. A. Dobson; second, H. R. Shafer.

Single Driver for Action. First, W. A. Dobson; second, H. R. Shafer.

Single Driver for Conformation. First, W. A. Dobson; second, H. R. Shafer.

The exhibitors are dealers in high-class horses, and the members had the opportunity of studying some of the best horses to be found in America.

Dr. J. W. Griffith is to be congratulated upon his success in getting the clinic started at 8 A.M., and in having both clinic and judging completed by 1 P.M.

Afternoon Session. The meeting was called to order at 2 P.M. by President Gibson.

J. W. Scott was appointed a member of the Committee on Resolutions to take the place of C. A. Clinton, who was absent.

Dr. Adamson read a paper entitled, "Compressed Air in the Treatment of Fistulas and Ulcers."[1]

Dr. J. Miller read a paper entitled, "Gastroenterotomy, with Report of a Case."[2]

Dr. G. L. Buffington read a paper entitled, "Ulcerative Enteritis in the Horse."[3]

Dr. W. A. Heck read a report upon "Three Cases Showing the Use of Oil of Turpentine in the Treatment of Atrophy of the Shoulder Muscles."[4]

Dr. T. A. Shipley made a report of the Committee on Sanitation as follows:

REPORT OF COMMITTEE ON SANITATION.

MR. PRESIDENT: Your Committee on Sanitation, or rather its Chairman, after vain appeals to other members of the committee and other members of the profession in the State for help, desires to submit its last year's report to be read by title at this time.

Our reason for so doing is partly because it seems as applicable to conditions to-day as it did one year ago. Not that there has not been any good and honest sanitary work done by veterinarians, but what has been done has evidently been done along the quiet avenues of education rather than the more conspicuous and bustling ones of legislation, and this work can probably be best brought out by a sort of old-time experience meeting, in which each member here may give briefly his knowledge of local conditions and his efforts to right them, and his success or failure and the reasons he assigns for such success or failure. Each is equally valuable as a criterion for future action. And for this reason also we wish to cut the report short so as to give what extra time there may be for this discussion.

But we want to again urge on you the especial need of local meat and milk inspection in cities of 10,000 inhabitants and upward, for, despite the large amount of Federal inspected meat sold in all the markets, the cities of this size naturally become the dumping ground of all undesirable animal carcasses and products that would obviously not pass our Federal inspectors, and because butchers and scalpers in smaller places do not have the opportunity to get this class of stuff on the markets without the publicity which would kill their nefarious traffic. But in places of 10,000 inhabitants and upward there can always be found some who are willing and able to handle questionable goods without being found out in a way that they can be brought legally to task for their transgressions, or that publicity given their operations which would effectually check them. The only real solution of this problem seems to be for cities of this size to have local city inspection at a public abattoir, and a system of insurance for clinically sound animals, for it is, of course, tuberculosis in this class of animals that would cause the heaviest losses, and they should not be altogether borne by the slaughterer, but, wherever possible, the loss should be made to revert to the original producer. It is this problem that we desire to emphasize and have discussed, because we believe it will lead to the detection of centres of this and other maladies, and will do much to educate the people to view the work of the sanitarian as a help to their progress rather than as a hindrance.

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[1] See page 146.

[2] Will be published in April number.

[3] Will be published in April number.

[4] See page 169.

The State Veterinarian, the executive sanitary officer of the State, reports an abundance of routine work with no very serious menace to livestock interests such as has gained a temporary foothold in the New England States. But even such outbreaks tend to emphasize the importance of the sanitarian and will, perhaps, lead to better results than were anticipated.

Another important point which we wish to emphasize at this time is the care the veterinarian should exercise in examining dirty-nosed horses and the importance of educating horse-owners of the dangers from glandered horses. Recent veterinary literature has chronicled the death of two brothers in an adjoining State from this malady after having been treated by their family physician for smallpox, and the infection of a woman physician who made the bacteriological investigation in the foregoing cases. If science would reveal to us a germ—as virulent a germ as this one—with which we could inoculate the general apathy on sanitary matters, the problem would be solved. The latent enthusiasm thus brought into play could not be checked in its good work.

Respectfully submitted,
T. A. SHIPLEY,
Chairman.

The Board of Censors reported favorably upon the following applications for membership: Carl W. Gay, Ames; W. E. Miller, Cherokee; Ralph F. Graham, Colfax, and C. G. Martin, Des Moines.

On motion, the rules were suspended and the Secretary instructed to cas the ballot of the Association for those whose names had been read. This was done and they were declared duly elected.

Dr. Louis A. Klein, of Fort Worth, Texas, was elected to honorary membership.

By vote of the Association, the following members were suspended for non-payment of dues: J. J. Moore, Lamoni; H. Shipley, Sheldon; R. C. Sayers, Fairfield, and J. O. Simcoke, Davenport.

On motion, ten dollars was appropriated to J. W. Griffith to defray expense of clinic.

On motion, twenty dollars was voted to the Secretary for editing, typewriting, and having printed the proceedings of the meeting.

The Committee on Resolutions reported as follows:

MR. PRESIDENT AND MEMBERS: Your Committee on Resolutions begs leave to report as follows:

WHEREAS, It has been the experience of all institutions of learning that in order to accomplish the best results it has been necessary that each division should have at its head a man highly qualified in the knowledge of that particular branch of science; and

WHEREAS, The Deanship of the Veterinary Division of the Iowa State College remains vacant; be it

Resolved, That we, the members of the Iowa State Veterinary Medical Association, in annual session assembled, would respectfully request that the Board of Trustees of that institution place a veterinarian in the position of Dean of the Veterinary Division of that College at an early date.

Resolved, That we, the Iowa State Veterinary Medical Association, learn with much pride and approbation the good results already obtained by Drs. Pearson and Gilliland, of Pennsylvania, in their researches upon the subject of vaccination of cattle against tuberculosis; and be it further

Resolved, That we offer them our encouragement in the attempts they are now making to render their method of vaccination practical for use in the herds of our country.

Resolved, That we, the Iowa State Veterinary Medical Association, express our strong disapproval of correspondence schools of veterinary science, whose purpose it is to give instruction in veterinary science to farmers, breeders, non-graduate veterinary practitioners, and others who are not graduate veterinarians; and be it further

Resolved, That we also express our strong disapproval of the instruction of non-graduates in any other than the regular undergraduate course in any veterinary college.

Resolved, That we endorse the holding of a clinic at each annual meeting, and that live-stock judging be conducted as a school of instruction in the science of judging at each annual meeting, and that the Committee on Clinics be hereby authorized to furnish suitable score-card blanks for the use of the members in recording their judgment, with reasons therefor.

Resolved, That we extend our thanks to the local committee, consisting of Drs. J. W. Griffith, T. A. Shipley, and O. R. Moyer, for the courteous entertainment and excellent clinic furnished by them.

Resolved, That we tender our thanks to the citizens, and especially to the city officials, of Cedar Rapids for their kind hospitality.

Resolved, That we tender our thanks to the Commercial Club of Cedar Rapids for having placed a convention hall free of charge at our disposal.

G. A. JOHNSON,
F. J. NEIMAN,
J. W. SCOTT,
Committee.

The report was adopted by vote.

Dr. J. H. McLeod offered the following resolution:

Resolved, That we, the Iowa State Veterinary Medical Association, offer a special vote of thanks to the management of the Grand Hotel of Cedar Rapids for the uniformly courteous and satisfactory treatment which they have accorded to our members throughout our sessions. Adopted by vote.

A volunteer paper was read by Dr. J. W. Scott entitled, "Principles of Heredity."

The following officers were elected for the ensuing year:

President: Dr. T. A. Shipley, Cedar Rapids.

Vice-Presidents: Dr. C. E. Stewart, Chariton, and Dr. F. J. Neiman, Marshalltown.

Secretary and Treasurer: John J. Repp, Ames.

Board of Censors: Drs. P. Malcolm, New Hampton; J. H. McLeod, Charles City, and H. C. Simpson, Denison.

Absolute harmony prevailed in the election. There were no opposing candidates for any office, and in each case the rules were suspended on motion, and either the President or the Secretary instructed to cast the ballot of the Association.

On vote of the Association, the resignation of Dr. G. A. Johnson from membership was accepted.

The following special resolution was adopted.

Resolved, That it is the sense of the Iowa State Veterinary Medical Association that each member personally investigate the method by which each non-graduate veterinary practitioner obtained his certificate of registration, including the question as to whether his vouchers were reputable stock-owners and freeholders; also that each member prosecute any who are now practising veterinary medicine, surgery, or dentistry in Iowa without proper registration with the Board of Veterinary Examiners.

Dr. Simpson moved that the Committee on Diseases and Treatment be instructed to investigate azoturia during the coming year and report upon it at the sixteenth annual meeting.

Motion adopted by vote.

On motion, the Association adjourned to convene in sixteenth annual meeting at Des Moines at the call of the President and Secretary.

The following members were in attendance: Drs. A. A. Adamson, Newton; S. H. Bauman, Birmingham; G. W. Blanche; Belle Plaine; C. A. Bradley, Marion; A. S. Brodie, Cedar Falls; J. L. Brodie, Cedar Rapids; G. L. Buffington, Baxter; E. A. Buxton, Vinton; William Drinkwater, Monticello; F. H. P. Edwards, Iowa City; J. I. Gibson, Denison; Ralph F. Graham, Colfax; J. W. Griffith, Cedar Rapids; J. E. Harrison; Burlington; S. K. Hazlet, Oelwein; W. A. Heck, Maquoketa; C. J. Heckard, Wheatland; G. A. Johnson, Sioux City; G. A. Kay, Avoca; G. S. Kerr, Washington; S. H. Kingery, Creston; P. O. Koto, Forest City; J. H. McLeod, Charles City; J. H. McNeall, Ames; P. Malcolm, New Hampton; C. G. Martin, Des Moines; J. Miller, Ottumwa; W. E. Miller, Cherokee; O. R. Moyer, Cedar Rapids; F. J. Neiman, Marshalltown; F. F. Parker, Oskaloosa; J. S. Potter, Iowa City; John J. Repp, Ames; James E. Robertson, Monona; J. R. Sanders, Corydon; George A. Scott, Independence; J. W. Scott, Manchester; T. A. Shipley, Cedar Rapids; Hal C. Simpson, Denison; C. E. Stewart, Chariton; H. E. Stewart, Lacona; H. E. Talbot, Des Moines; George M. Walrod, Storm Lake.

The following visitors were in attendance:

Peter Boyd, Cedar Rapids; William Bryant, Marion; C. Carney, City Board of Health, Cedar Rapids; Chief Cook, Fire Department, Cedar Rapids; Zan Cotter, Chicago, Ill.; D. Cushman, alderman, Cedar Rapids; W. A. Dobson, Marion; J. C. Douns, Vinton; Dr. W. L. Evers, Iowa Falls; W. Garretson, White Lake, S. D.; C. Ham, Solon; W. N. Hake, Vinton; James Hughes, alderman, Cedar Rapids; Charles D. Huston, Mayor, Cedar Rapids; C. B. Hamilton, Cedar Rapids; Dr. Lawler, city physician, Cedar Rapids; John Limbach, City Board of Health, Cedar Rapids; Dr. R. Mollance, Reinbeck; Mrs. John J. Repp and two sons, Ames; J. Robertson, Norway; C. R. Riley, Cedar Rapids; Thomas H. Simons, Secretary Commercial Club, Cedar Rapids; L. J. Strong, Iowa City.

Respectfully submitted,
JOHN J. REPP,
Secretary.

CONNECTICUT VETERINARY MEDICAL ASSOCIATION.

THE annual meeting of the Association was held at Hotel Hartford, Hartford, Tuesday, February 3, 1903. The meeting was called to order at 2.30 P.M. by First Vice-President, Dr. H. Whitney. The following members were present: Drs. E. C. Ross, J. H. Gardner, H. Whitney, H. E. Bates, J. E. Underhill, L. B. Judson, George T. Crowley, F. G. Atwood, P. F. Finnegan, F. A. Ingram, and B. K. Dow. Visiting veterinarians: Drs. Charles L. Cotton and C. E. Dornheim.

The reports of the Secretary and the Treasurer were read and voted to be accepted as read.

There not being a quorum of the Board of Censors present, upon motion of Dr. Ross, it was voted that the President appoint members present to fill the vacancies.

The President appointed Drs. L. B. Judson and J. E. Underhill.

The Secretary presented the following veterinarians' applications for membership in the Association: George W. Loveland, of Torrington, C. V. C., '94, member A. V. M. A.; Fred F. Bushnell, of Winsted, New York State V. C., '02; C. E. Dornheim, of New London, C. V. C., '02, and Charles L. Cotton, Vet. Dept. U. of Pa., '01.

These names were referred to the Board of Censors for their action.

The Board reported they found all applicants eligible, and recommended that they be elected to membership in the Association.

It was voted to suspend the By-laws, and the applicants were unanimously elected to membership.

The following officers were unanimously elected to serve for the ensuing year:

President.—Dr. Harrison Whitney, of New Haven.

Vice-Presidents.—Dr. Thomas Bland, of Waterbury, and Dr. J. E. Underhill, of New London.

Secretary.—Dr. B. K. Dow, of Willimantic.

Treasurer.—Dr. E. C. Ross, of New Haven.

Board of Censors.—Drs. H. E. Bates, of So. Norwalk; F. A. Ingram, of Hartford; R. D. Martin, of Bridgeport; F. S. McGuire, of New Britain, and L. B. Judson, of Winsted.

The Secretary brought up the subject of having the meetings begun earlier in the day, and material provided for a good clinic in connection with it.

The matter was discussed at some length by most of those present.

Dr. Ross extended a cordial invitation to the members to hold the next meeting in New Haven at his hospital, and he would have material ready for clinics and operations.

Dr. Atwood also extended an invitation to the members to visit his hospital and use his new operating table.

It was voted to hold the semi-annual meeting at Dr. Ross' hospital, in New Haven, August 18, 1903, at 10 A.M.

Upon motion, made by Dr. Ingram, seconded by Dr. Colton, it was voted that the following New Haven veterinary surgeons act as a committee to provide ample material for a clinic, and to select operators and make all necessary arrangements for the meeting: Drs. E. C. Ross, H. Whitney, F. G. Atwood, and J. H. Kelley.

Upon motion made by Dr. Atwood, seconded by Dr. Ingram, it was voted that the Committee of Arrangements extend a special invitation to Dr. Thomas Bland, of Waterbury, to be present at the next meeting and perform one or more operations.

The Secretary presented the names of Drs. R. P. Lyman and N. S. Mayo; both having moved from the State, wished to resign their membership in the Association.

Dr. Ross said these two members had done a great amount of work for the Association, and were very instrumental in its reorganization, and thought, as a matter of courtesy and respect to these two members, their names ought to be placed on the roll of honorary membership in the Association, and made a motion to that effect. After considerable discussion, the motion was lost.

Dr. F. G. Atwood read a paper on "Technique of Veterinarians' Operating Rooms and Equipment." He also exhibited several photographs of his new operating-table, and explained its workings and advantages.

Dr. B. K. Dow read a paper on "Cerebro-spinal Meningitis," which elicited much discussion and gradually drifted into a lively and interesting discussion of glanders and tuberculosis.

The hour being so late, it was decided to leave the subjects for discussion go over to the next meeting. The subjects were: "Azoturia," "Canine Distemper," and "Scrotal Hernia."

The meeting adjourned at 7 o'clock.

B. K. DOW,
Secretary.

CENTRAL CANADA VETERINARY ASSOCIATION.

At a well-attended meeting of the veterinary practitioners of the city of Ottawa and vicinity for the purpose of perfecting arrangements for the entertainment of the American Veterinary Medical Association at its fortieth annual meeting, to be held during the first week in September next, the Central Canada Veterinary Association was launched.

Through the courtesy of the city, which is doing everything in its power to make the coming meeting of the A. V. M. A. a grand success, this meeting of the veterinarians of Ottawa and vicinity was held in the City Hall on Thursday evening, February 5th.

Those present were: Drs. Higginson, Rockland; Lynchke, Carp; McGuire, Cornwall; Young, Cobden; Young, Merrickville; Young, Almonte; Allen, Brockville; Irvine, Maxwell; Rutherford, Harris, White, James, Higgins, Hollingsworth, Hopkins, and Boucher, of Ottawa.

The meeting was called to order by Dr. A. W. Harris, chairman of the previous meetings held by the city practitioners. Dr. W. W. Boucher read the minutes of the previous meetings that those attending might become acquainted with the steps already taken toward a concerted action for the entertainment of the A. V. M. A.

Dr. J. G. Rutherford explained in detail his visit to Minneapolis, at which time he invited the A. V. M. A. to hold its next annual meeting at the Canadian capital, the proposition being heartily supported and unanimously received by them. He also explained the present status of the veterinary profession in Canada, and, that with the exception of Manitoba, where there has been an exceedingly strong Association for fourteen years, which Association has been the means of getting through the Legislature of that Province the strongest bill regulating the practice of veterinarians enjoyed by any such body in the world; and Quebec, where an Association was formed last year which succeeded in obtaining legislation, and who are this year endeavoring to strengthen their existing legislation.

Dr. Rutherford explained that, while an Association here in this section would be unable to take active steps in obtaining legislation, its salutary influence would be beneficial in stimulating and encouraging the existing veterinary associations in both the Provinces of Ontario and Quebec to a more concerted action.

Active discussion followed, in which each veterinarian present took an active part, all agreeing that the time was opportune for effective work toward organization and the stimulation of a more friendly feeling among the members of the profession.

Dr. Rutherford moved that we proceed to form an association of the veterinarians of Ottawa and vicinity, to be called "The Central Canada Veterinary Association." The motion was seconded by Dr. White and unanimously carried without further discussion.

After the naming of the Association the next step was the election ot officers, as follows: Honorary President, Dr. J. G. Rutherford, Ottawa; President, Dr. A. W. Harris, Ottawa; Vice-President, Dr. T. A. Allen, Brockville; and Secretary-Treasurer, Dr. W. W. Boucher, Ottawa. After some discussion it was decided that a board of directors was essential, the board to consist of the President, Vice-President, Secretary-Treasurer, and eight additional members to be elected by the Association, the following being unanimously chosen: Drs. Lynchke, Carp; W. C. Young, Almonte; F. Fisher, Carleton Place; W. C. McGuire, Cornwall; A. E. James, Ottawa; G. W. Higginson, Rockland; J. B. Hollingsworth and C. H. Higgins, Ottawa.

It was decided that the Executive Committee should consist of the Ottawa members of the Board of Directors for the sake of convenience in the holding of meetings. Dr. C. H. Higgins was elected as official reporter.

The Executive Committee was directed to prepare the Constitution and By-laws of the Association, to be submitted to the Board of Directors for approval, said Constitution and By-laws to be presented to the next meeting of the Association.

During the discussion relative to the drawing up of the By-laws inquiry was made as to the eligibility for membership in the Association. This matter of eligibility of membership was left wholly with the Executive Committee, and all applications for membership should be passed upon by this body before being presented to the Association.

A motion of thanks was extended to Dr. Rutherford for his service to the profession of Canada in inviting the A. V. M. A. to hold its next meeting in Ottawa and the interest he has taken, not only in the formation of the Central Canada Veterinary Association, but in matters pertaining to the advancement of the profession throughout the whole Dominion. Unanimously carried.

The date of the next meeting was set for Easter Monday evening, April 13, 1903, at 7.30 o'clock, in the City Hall, Ottawa, which, it is expected, will be largely attended by local veterinarians.

On motion of Dr. James, the meeting adjourned.

DR. C. H. HIGGINS,
Official Reporter.

THE VETERINARY ASSOCIATION OF MANITOBA.

THE annual meeting of this Association was held in the city of Winnipeg on February 19th, the President, Dr. S. A. Coxe, in the chair. The following members were present: Drs. S. A. Coxe, Brandon; C. Little, Winnipeg; C. McGilvray, Binscarth; J. A. Stevenson, Carman; A. M. Livingstone, Melita; W. A. Hilliard, Minnedosa; W. R. Taylor, Portage la Prairie; H. F. Whaley, Glenboro; W. E. Martin, Winnipeg; W. Harrison, Glenboro; J. Welsh, Roland; W. S. Henderson, Carberry; F. Torrance, Winnipeg; W. J. Hinman, Winnipeg; R. Frame, Treherne; M. B. Rombough, Morden; W. Swinerton, Carberry; W. A. Dunbar; Winnipeg; A. E. Williamson, Winnipeg; E. P. Westell, Winnipeg.

The report of the Secretary-Treasurer and Registrar showed the Association to be in a flourishing condition, the total membership being 77.

The election of officers resulted as follows: President, W. R. Taylor, Portage la Prairie; Vice-President, G. Hilton, Portage la Prairie; Secretary-Treasurer and Registrar, F. Torrance, Winnipeg; Council, Drs. Torrance, Stevenson, Coxe, Hilton, Henderson, and Martin.

A grant of $100 was made to the central committee at Ottawa as a contribution toward the expense of entertaining the A. V. M. A.

Dr. C. D. McGilvray read an interesting paper on "The Physical Examination of the Sick Horse." The essay showed evidence of careful preparation, and the essayist received the thanks of the Association and was awarded the prize offered at the last meeting.

It was decided to hold the semi-annual meeting at Portage la Prairie, the date to be fixed by the Executive.

F. TORRANCE,
Secretary-Treasurer.

A. V. M. A.

OTTAWA, CANADA, SEPTEMBER 1 to 4, 1903.

Secretary Repp, of the Association, has just issued these two very important letters to the members and the Resident State Secretaries:

FEBRUARY 25, 1903.

TO THE RESIDENT STATE SECRETARIES:

I am sending herewith a number of copies of the Constitution and By-laws of the American Veterinary Medical Association, some application blanks and envelopes, and a supply of a circular letter.

You will please, at your earliest convenience, send a copy of the letter to each veterinarian in your State or Territory who is not a member but eligible to membership, and enclose with it an application blank. Reserve the copies of the Constitution and By-laws to send to those who may make a request for a copy. When a copy is sent, Chapters VI., VIII., and XI. should be marked and attention directed to them. In connection with your efforts to secure new members, I would call your attention to Chapters VI. and XI. of the By-laws. Care should be taken not to endorse the application of one who is not qualified by graduation from a recognized school, who is given to unprofessional conduct or bad habits, or who resorts to improper methods of advertising, or uses illustrated letter-heads and envelopes. You are respectfully requested to inquire into these matters before you accept or endorse an application. The initiation fee must be paid in advance, and is best sent direct to me by the applicant when he sends his application, after the application is returned to him by you, or other voucher after endorsement. In some cases a prospective applicant will promise to discontinue practises which render him ineligible if proper explanation is made to him. It is advised that you make such explanation when circumstances seem to warrant it. In all such cases you should write me a statement of the facts, to be filed with the application. The Association is anxious to increase its membership by the addition of all who are eligible, so will appreciate any special effort you may make in this direction.

If the envelope in which the circular and blank are sent is left unsealed, it can be mailed for one cent. In this way a considerable saving in postage can be made.

The very commendable custom of submitting a report at the annual meeting upon matters relating to the veterinary profession in each State and Territory has been firmly established by the State Secretaries. It is hoped that at the coming meeting each State Secretary will be ready with a report. If you cannot be present at Ottawa, and will send your report to me before the meeting, it will be published in the proceedings. There is no more interesting or instructive part of the proceedings than the reports of State Secretaries. You should not overlook this important part of your duties.

The subject of arranging a programme for the Ottawa meeting must at once engage our most serious attention. The contributions should represent every section of the home of our organization and every specialty of our profession. We must have enough papers, and they must be in sufficient variety to engage the attention of all our members. Will you kindly solicit contributions from each one of our members in your State or Territory whom you believe might be willing to take the pains to get up a production of merit, urging him to announce the subject very soon, so that a good programme may be assured at an early date.

It is also very essential that you exert your influence to secure a large attendance for the Ottawa meeting. There are many things to attract our members and others to Ottawa. It will be a delightful trip for anyone, and more so for many whose old homes, which they may wish to revisit, are in the eastern provinces of Canada or in the eastern part of the United States. Rates will be announced in due time. It is expected that the Ottawa meeting will far outclass in every way any that has yet been held, and you can do a very great deal to make it so.

If you will, sometime before or soon after the meeting, send me an itemized bill of your expenses as State Secretary, such bill will be duly audited and paid.

Please inform me of any change of address of any of our members in your State or Territory of which you may become cognizant.

Will you kindly acknowledge the receipt of this letter and package.

I shall be glad to receive from you any advice or suggestions looking toward the advancement of the Association.

Yours respectfully, JOHN J. REPP,
Secretary.

FEBRUARY 23, 1903.

TO THE MEMBERS OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION:

One of the most important things to be done in the way of preparation for the Ottawa meeting is the arranging of a programme. A good programme means a good meeting, and a poor programme means a poor meeting. Whether it be good or bad depends upon you. Your Secretary can only solicit, urge, entreat. He usually has to do all of these and more. Making a programme is always difficult, and a source of much anxiety to the officers upon whom the responsibility of failure is placed. It should not be difficult. Why not make it easy? The inducements in the way of added prominence given the contributors, the publication of the paper in the proceedings, and the knowledge that help is given to others and something is added to the fund of knowledge should make everyone anxious to contribute.

The programme will be completed at the earliest possible date; by June 1st, if possible. This is the only general solicitation that will be made. If it does not bring the desired result within a reasonable time, the programme will be completed by personal requests to individual members. Please let me have the title of your paper at the earliest possible date. If you are disposed to present a paper, and will let me have your promise to do so, I shall wait a reasonable time for the announcement of your title to follow if you are not decided as yet what it shall be. It is desirable to have contributions which represent every part of the home of our organization and every specialty of our profession.

Please let me hear from you very soon. If you have any suggestion or advice to offer in regard to making the programme, it will be gratefully received.

There is enclosed with this a copy of the revised Constitution and By-laws. Your attention is directed to the proposed amendments, to be found at the end of the booklet, which will be acted upon at the Ottawa meeting.

Yours respectfully,
JOHN J. REPP,
Secretary.

President Winchester was a strong advocate of the surgical clinics for the Minnesota meeting. He yearns for the colleges to have a four years' course and the day when the A. V. M. A. will not have to conduct a post-graduate course.

RESOLUTIONS ADOPTED BY THE KEYSI MEDICAL ASSOCIATIOI

WHEREAS, Governor Stone has throughout his e a careful hearing to our committees, and has careful pertaining to the work of the Veterinary Examir Live-stock Sanitary Board; therefore be it

Resolved, That this Association hereby place on : tion of Governor Stone's attitude toward questions tion, and we thank him for his friendly interest and

WHEREAS, Our State has received at the hands Sanitary Board the greatest benefits possible; and largely been directed by our colleague and fello Pearson; therefore, be it

Resolved, That this Association approve of his our Board of Trustees be directed to officially take necessary to secure his reappointment under the ir

Resolved, That this Association approve the enac that certain infectious diseases be reported to the S Board.

Resolved, That we, the Keystone Veterinary Medi of the proposed legislation seeking to secure a re-r narians in the State of Pennsylvania, so that a mo practitioners may be made accessible to everyone's ment of veterinary education.

Resolved, That the Keystone Veterinary Medic meeting here assembled, are in hearty accord and vidual and collective support of the Good Roads bi Sproul, and all kindred legislation as needed to er measure and movement.

PERSONALS.

The resignation of Dr. W. J. Muldown Cavalry, U. S. A., Fort Meade, South Dako to take effect January 14th.

Dr. P. A. Lehman, of York, Pa., was a Jo January. Dr. Lehman examines many cattle stock Sanitary Board that enter the southern

Dr. S. C. Freeland, of Marion, Kansas, is of "The Rink Livery," and conducts an remedy business in connection with his practi

Dr. H. B. McDowell, of Middletown, Del., in all State veterinary sanitary work.

Dr. H. S. Borneman, of Norristown, Pa., JOURNAL office in February.

Dr. W. H. Dalrymple, of Baton Rouge, La., was a delegate to the Kansas City Convention of Live-Stock Growers and also in attendance at the several meetings held in Lincoln, Neb., and the representative of similar interests.

Dr. Albert Picquet, ex-army veterinarian, was a visitor to Philadelphia, Pa., in February.

Dr. V. B. Weaver., of Bangor, Pa., was a visitor to the JOURNAL office early in February and to the office of the State Veterinarian.

Dr. J. H. McKenzie, of Rochester, N. Y., who was so seriously injured by being kicked by a horse, causing a bad fracture of the leg, is slowly recovering.

Dr. James E. Lacey, of Titusville, Pa., practices his vocation minus one hand, having lost the same through the bite of one of his equine patients.

Dr. W. K. Lewis, of Chicago, Illinois, has returned to Anderson, S. C.,

Dr. Jas. W. Sallade, of Schuylkill Haven, Pa., was a visitor to Philadelphia in February.

Messrs. Hall & McCully is the name of a new firm now practising in 24th Street, New York City.

Dr. W. Horace Hoskins, of Philadelphia, Pa., addressed a joint session of the State Legislature of Delaware, early in February, relative to State veterinary control work, urging more stringent regulations and more extended work for the welfare of the " Blue Hen State."

Mrs. Dr. P. K. Jones, of Duquesne Heights, Pittsburg, Pa., died in the latter part of February from typhoid fever complicated with pneumonia.

Dr. W. H. Pendry, of Brooklyn, N. Y., has become a contributor to the columns of several newspapers, of experiences in his profession; they make interesting stories.

The Veterinary Department of the University of Pennsylvania entertained in February the Rt. Rev. Ethelbert Talbot, D.D., LL.B., at a reception in Houston Hall.

J. G. Ferneyhough, D.V.S., has been appointed State Veterinarian of Virginia.

Dr. E. B. Ackerman, of Brooklyn, N. Y., Chairman of the Committee on Intelligence and Education of the A. V. M. A., is doing very active work along the lines of the colleges and State Boards.

Dr. V. G. Hunt, of Arcola, Illinois, after more than forty years of active practice, is still active as a student of veterinary science, a reader and contributor to association work and journalism.

THE JOURNA

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VOL. XXIV. *APRIL, 1903.*

INFECTIOUS DISEASES OF OUR FA

BY W. H. DALRYMPLE, M.R.C
LOUISIANA STATE UNIVERSITY AND A. AND M. COLLEG

MR. PRESIDENT: When we consider for
farm animals of the United States repres
close upon three billions of dollars, and that
zymotic class may destroy some millions of
stock property in the course of a single yea
discussion of the subject allotted to me, incluc
for the control and extermination of the inf
farm animals, is one of such momentous imp
well-being of the country that it might with
trusted to much abler hands than mine. T
these plagues that we have had to deal with
during the past ten years or so, but we sc
limited experience as sufficient to render one
matters connected with the entire group, whic
would seem to comprehend, so that we wi
maladies in a rather cursory manner, and pro
aid the experiences of others to help us out.
pected that within the limits of an ordinary p
a somewhat popular character, and before an
be composed of an admixture of both scienti
so called, the long list of infectious diseases
anything like an exhaustive manner as to tho

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[1] Presented at the sixth annual meeting of the National I
City, Missouri, January 15, 1903.

Gentlemen, the more that this colossal subject occupies our attention and our time, the more do we become convinced of its tremendous import and of the urgent necessity for co-operation—in fact, united effort—if we are to obtain the maximum of success in dealing with those destructive agencies which annually cost the community, the State, and the country so much money.

Perhaps the most powerful factor that has to be reckoned with to-day, as has been the case in the past (in preventing greater progress with the bacterial diseases of our live-stock), is an insufficiently educated public opinion, although writings on health are among the oldest in the world, and the subject has engaged the attention of the profoundest thinkers and the most renowned leaders of men.

The immortal Parkes, the founder of modern hygiene, tells us that "if we had a perfect knowledge of the laws of life, and could practically apply this knowledge in a perfect system of hygienic rules, disease would be impossible. That such a perfect knowledge of these laws is not likely to be obtained, or rather, if obtained, is not likely to be acted upon, we have no reasonable doubt. The value of health will never be generally appreciated, and the serious losses occasioned by disease seem only too readily effaced from the public mind."

It is the province of hygiene to seek out and determine the causes of disease and to formulate rules for their prevention and removal. It is a matter of impossibility, however, for the layman to make a study and familiarize himself with all of the agencies at work in the production of disease. This implies a lifework, and, in the investigation of the numerous contagious diseases, a knowledge of the life-histories of the various pathogenic or disease-producing organisms, such as their identification, requirements for existence, methods of reproduction, modes of spread, the germicidal agents by which they may be effectually destroyed, the varying degrees of tenacity of life with which they are endowed, etc. These are matters which have to be left to the scientific investigator in the great field of bacteriology, to whom we are so much indebted for the great advancement made in recent years in the control of the many contagious and fatal diseases which have for centuries menaced the lives, both of mankind and animals, throughout the civilized world. But it is possible, and a matter of the greatest importance, that our stock-owning public should at least acquaint themselves with the more practical points demonstrated and the accurate conclusions arrived at by the scientist in connection with this class of diseases which may periodically occur to decimate our herds and flocks, occasion pecuniary loss, and often financial ruin to unfortunate owners and to the country.

It may not, of course, be necessary that the stock-owner should know the minute differential characteristics which distinguish the germ of anthrax from that of tuberculosis under the microscope, nor their differences in measurement by microns; but he ought to know, and it would be to his advantage to know, and that as thoroughly as possible, the more intelligent sanitary methods to employ in order to place a check upon and limit the spread of those dangerous enemies to the health of his animals—the infectious diseases.

Wherever there exists a lack of such knowledge in this country, there is, I think, absolutely no good reason for it. Reliable literature bearing upon the subject abounds, and can be obtained free, or at a minimum of cost, in the form of publications of the National Department of Agriculture, bulletins of our agricultural experiment stations, and in many of the most reputable of our agricultural journals throughout the country. But, notwithstanding these sources of information, it seems frequently to be the case that when a calamity in the guise of a decimating disease attacks our live-stock we are found in supreme ignorance of the proper methods of attack and defence; we throw aside our better judgment and open wide our doors to the inroads of the charlatan or the wily fakir, whose opportunity is our adversity. In a section of the country where live-stock sanitary legislation is not as yet just as stringent as it might be it has been my personal observation that there are certain classes of individuals who are, during an outbreak of contagious diseases, extremely dangerous, to say the least. One of these may be said to be the vendor of proprietary medicines, who, through ignorance of the true nature of the disease, but merely on the say-so of someone who has administered or applied his nostrum, advertises his drug, or condition powder, or stock-food, as a "sure cure," and to which the uninformed and unsuspecting stock-owner "catches on."

Another is the "would-be benefactor," who has been similarly deceived into the belief that he has "hit" upon a specific which has "never failed," recommends it to his neighbor in adversity; and a third is the professional fakir, who neither knows nor cares what the disease may be so long as he can "rake in the shekels" from his credulous and confidence-reposing victim. The danger here lies, not in any special harm that might accrue from the remedy (?) *per se*, but in the liability of the disease to spread through absence of any virtue in these so-called "specifics"—so far as the malady itself is concerned—and the total neglect of any sanitary measures, which in reality are the only rational means by which to successfully combat the ravages of zymotic diseases. Education or accurate information along such lines only will release our stock-owners from the thraldom of such ignorance and empiricism. But it will do more. It will tend to rob our contagious maladies of the terror and dread they have for so long held in the minds of the people. And with such information obtained the errors of the past would be relegated to the archives of a bygone age, and the light of reason and intelligence beam forth to obliterate the dark doings of empiricism, superstition, and doubt which have held such an extended reign.

There is another point which I think will bear passing allusion. There seem to be not a few who still harbor extremely grave doubts, or, at all events, have very cloudy ideas relative to the existence of those minute and lowly forms of life which we are pleased to designate germs, bacteria, micro-organisms, etc. True, their existence would be more convincing to many of us were they large enough to be seen with the naked eye hovering around our horse and cow-stables, hog-lots, etc., and if they could be exterminated by means of an organized round-up and a regular germ-killing time. But their microscopic dimensions and their insidious methods of conveyance are by no means proof of their non-existence; and although their parasitic mode of life often results so fatally to ourselves and our animals, they are not the outcome of spontaneous growth, but are a part of the universe of living things just as much as those claiming a higher position in the scale of creation. It is very fortunate, however, that although bacterial forces of life are very numerous, and the majority of them of economic value in this progressive world of ours, the disease-producing forms are relatively few. Nevertheless, when some of the more dangerous of the latter are introduced into new or previously uncontaminated territory, and for want of the proper measures being taken to prevent their multiplication and spread, their ravages frequently become so serious as to interfere with both national and international commerce in live-stock, as is at present the case in the New England States. Contagion or infection, then, is nothing more or less than the presence of these lowly forms of life—that is, the disease-producing class we call bacteria, although it is a fact that those responsible for the production of some of our contagious diseases have not as yet been identified. This, however, is no doubt due to their extremely minute dimensions and to the fact that up to the present time no instruments of sufficient high magnifying power have been produced to discern them. The sole aim then of the sanitarian, in whatever capacity he may be, whether connected with local health boards, State live-stock sanitary commissions, or the National Bureau of Animal Industry, is, by the employment of the most approved and effective means within his power, to destroy these pathogenic bacteria and thereby prevent their propagation and distribution. This, of course, requires training and accurate information on the part of the expert; but there is nothing chimerical about his methods; he is simply putting into practice the knowledge he has acquired from patient investigation and careful observation. The infected area, however, is often permitted to extend for want of proper appreciation of the importance of sanitary measures on the part of stock-owners, that an epizoötic of disease may possibly occur before the authorities are cognizant of its existence. On the other hand, if more accurate information regarding the laws of animal hygiene—which include sanitation—was acquired by owners of live-stock, and by their hearty co-operation with those having authority to look after contagious diseases, many an outbreak which might otherwise assume the proportions of an extensive epizoötic would be "nipped in the bud," and great loss (through destruction and death of affected animals) thereby averted; and besides, the necessity for an embargo being placed on our foreign and domestic trade in cattle in the infected territory be done away with. A stock-owning public, then, able through more accurate information acquired, and willing to lend their united effort to assist those whose duty it is to labor in this important field of veterinary sanitary science, would, in my humble judgment, be the most potent agency for good in the prevention, control, and eradication of those infectious animal plagues that periodically affect our live-stock and carry such loss and devastation in their wake.

Of "The Four Bovine Scourges," viz., rinderpest, contagious pleuropneumonia, foot-and-mouth disease, and tuberculosis, which the late Prof. Thomas Walley, of Edinburgh, compiled in a valuable volume bearing the above title, we are thankful to be able to say that tuberculosis and foot-and-mouth disease only have any existence at all in this country at the present time; and, although the former is much more widespread than we would wish to see it, the United States was evidently free from the latter disease, with one or two minor exceptions, until quite recently, and there is every reason to hope that through the eternal vigilance of our national and other authorities who have the matter in charge, it will be confined to its present temporary habitat, and before many weeks effectually exterminated from our shores. There could be no greater proof, we think, of the value of a thoroughly organized sanitary system in any country than the accomplishment of the monumental task of completely eradicating contagious pleuropneumonia by the indefatigable efforts of the officers of the National Bureau of Animal Industry, that most important branch of the United States Department of Agriculture. It is almost impossible, in fact, to realize the importance of such an achievement to the country, or to endeavor to make a computation of the value of such a result in dollars and cents. True, Great Britain, for example, which is the largest importer of our cattle, still refuses to land our store animals as an extreme precaution, and which seems to us as somewhat unreasonable, considering that we have for quite a considerable length of time been able to show a clean bill of health so far as this disease is concerned. In so far, then, as contagious pleuropneumonia is concerned, I think we may pass it by, with our sincere gratitude to the government authorities for having so effectually, and, we trust, permanently, stamped this menacing disease out of the country.

Rinderpest or cattle-plague may also, I think, be dealt with in a similar summary manner, as we have never suffered from its ravages in this country, and it is to be hoped we never will, although our new possession—the Philippines—has experienced to some extent its destructive effects.

The "great white plague," as tuberculosis is sometimes referred to by the medical world, is a disease about which so much could be said that it would be impossible to give to it the amount of time and space it merits in a paper of this character. We believe, however, that with that concert of intelligent and unselfish action, previously referred to, on the part of our stock-owners and experts, with neither forces having any personal or selfish ends to subserve, and with the means now being taken by the United States Department of Agriculture to prevent the introduction of tuberculous animals from abroad, the time need not be far distant when this disease also may be placed in the category of those that are known in name only and not in reality in connection with our farm animals on this side of the Atlantic.

The last of the "Four Bovine Scourges," so called by Professor Walley, is the one which has been recently causing so much alarm all over the Union, namely, the foot-and-mouth disease, and, as it is no doubt uppermost in the minds of stockmen at the present moment, we will devote a little more space for its consideration in a general way. This disease, also known by the synonyms: epizoötic aphtha, aphthous fever, eczema epizoötica, vesicular epizoötic, murrain, etc., is one the contagious nature of which has been known for quite a considerable length of time, and seems to have been accurately described in the eighteenth century. According to German authorities we find that the disease existed in Southern Germany, in Switzerland, and in Italy from 1809 to 1812, and again from 1819 to 1823. Prof. George T. Brown, of London, states that in 1839 it was introduced into England, where, since that date there have been ten great epizoötics, which number, however, has been added to since Professor Brown made this statement. From 1840 to 1860 it extended throughout all Europe. In 1871 it affected 700,000 animals in France, and nearly the same number in England, 1400 dying, or 1 per cent. In 1883 in Great Britain they had some half a million aphthous fever cases, 60,000 in Prussia, as many in Austria and Italy, and more than 100,000 in Bavaria, including cattle, sheep and hogs. Although many more similar records might be cited from European countries, the above are, I should think, sufficient for the purpose of showing the infectiousness of this disease and the rapidity with which it can spread. Fortunately for us, however, it is largely restricted to parts of Continental Europe, especially the eastern portion, and its introduction into the United States has been hitherto prevented by the strict enforcement of our quarantine measures, with the exception of a few isolated cases between 1870 and 1889, and, until the recent outbreak, the origin of which appears, as far as I am aware, somewhat hypothetically. The specific cause of foot-and-mouth disease has not been definitely ascertained, or, we should rather say, clearly demonstrated. It is the general belief, however, among the ablest authorities that it is a specific infection, and that each outbreak must originate in some previous case or cases, and that the infection may be transmitted directly or indirectly to healthy animals. The virulent material is contained chiefly in the vesicular eruptions in the mouth and on the feet, the discharge from either being the source of its wide distribution. In infected stables and manure it is said to preserve its activity for many months, which may account in a measure for recovered animals remaining contaminated for a long time; and it is considered that the propagation of outbreaks of this malady occur especially along lines of travel and of transit.

The chief factors of mediate or indirect contagion are enumerated as follows: wagons, stables for transient animals, markets, pastures, and common troughs, dealers and persons who have charge of animals, bulls, feed, litter, manure, etc. Herds of swine in transit have been shown to be particularly dangerous. In the same stable transmission may also occur directly from sick to healthy animals, as by licking, or by milkers. Young suckling animals become infected by the ingestion of milk from diseased mothers. And the sick of one species of animals may contaminate healthy members of other susceptible species.

Among the domestic animals it is most commonly observed in cattle, hogs, sheep, and goats, although the horse, dog, cat, and even poultry may be affected by it, and it may attack the human subject as well. The period of incubation, or the time that elapses between that of infection and the manifestation of the symptoms varies, according to Williams, of Edinburgh, from twenty-four hours to three or four days, the average given by German authorities being three to five days. It runs its course in the animal, if uncomplicated by other conditions, in from eight to twenty days.

Without going over the entire train of symptoms that might be patent to the eye of the trained clinical observer, we may state that the more prominent and more easily recognizable evidences to the stockman are: elevation of temperature and indications of febrile disturbance, uneasiness, and, if the thermometer be used, it would be found that the temperature might reach, but rarely exceed, 104° F., inappetence and cessation of rumination, or chewing the cud, the mucous membrane or lining of the mouth becomes red in appearance, there is frequently smacking of the lips, and if the latter are closed for a time the accumulated saliva escapes in quantity as soon as the mouth is again opened. After the initial stage of the fever (about two or three days' duration) the eruption of vesicles or blisters—of different sizes—appears on the mucous membrane of the gums, inner surface of the lips, inside of the cheeks, on the tongue, and on the roof of the mouth. In a short time the delicate structures enclosing the vesicles are separated and thrown off in more or less rounded patches, leaving raw surfaces, which may, however, be again covered, or may be changed into ulcers. Owing to this painful condition saliva accumulates in large quantities and falls from the mouth in long threads or strings. The symptoms in the feet generally follow those of the mouth, although they may also appear at the same time. The skin around the top of the hoof, and especially in the cleft between the claws and at the heels, becomes red, hot, swollen, and painful. This may be observed in one or in several of the feet simultaneously. Within twenty-four to forty-eight hours small blisters begin to form, varying in size, and containing in the beginning a yellowish, limpid fluid, which later becomes turbid and viscid. The animal is lame, both motion and locomotion being extremely painful, so that it is inclined to remain standing or lying down the greater part of the time. After the blisters have ruptured, scars usually form in from eight to twenty days, provided no complications have arisen in the interim. The udder sometimes becomes affected, the teats more particularly being the seat of the eruption. The vesicles in this situation are frequently broken in the operation of milking, and converted into raw, reddened, tender patches, denuded of epidermis or top layer of the skin.

In the hog the disease is said to first appear in the feet; less frequently in the mouth. And in the sheep and goat the condition is usually confined to the claws, and the course of the disease is said to be slower in these animals than in the ox and the hog.

Although, as may be inferred from some of the statistics given, this malady is extremely infectious, causing considerable inconvenience and pecuniary loss, both to the individual and to the country. It has the redeeming feature, so to speak, of not being very fatal in its results, which are given at about from 1 to 4 per cent., except in the case of very young animals.

The treatment from a national standpoint is, of course, preventive; or, in other words, has to be conducted along purely sanitary lines, and as it is a disease of both national and international significance, this comes within the jurisdiction of the authorities at Washington. Still, by the possession of a working knowledge of such a disease, if only to the point of arousing suspicion, and an acquaintance with the elementary principles of sanitary science and how to practically apply them, the stock-owner could often render valuable aid in limiting the disease to its primary focus, and thereby assist in checking its further spread.

There are quite a number of other diseases that would naturally come within the scope of my paper, but which for the lack of time I will of necessity have to pass by. Before drawing to a close, however, I would like to say a few words in connection with anthrax, a disease with which I have had more or less personal experience within the past few years, and which is considered to be one of the most dangerous and fatal, to both mankind and the lower animals, known to medical science.

Anthrax, or as the French element in the Southern part of the country term it, charbon, also belongs to the specific fevers, and is caused by a germ, the bacterium anthracis, which is found in great numbers in the blood of animals that have succumbed to the disease. It would appear that of later years this disease has become more widely distributed over the country, occasioning considerable loss; but the locality which seems to furnish the most suitable conditions for the propagation of the infective germ is along the Lower Mississippi Valley, where it has periodically in past years played great havoc among animals of every breed and variety, man himself not being excepted. Just when this disease was first introduced into the United States it is impossible to say, but that it has existed for many years in the southern section of the country, and especially along the coast line of the Gulf of Mexico, there can be no reasonable doubt, as from personal investigation we have found that it has been known to exist at least as far back as the recollection of the oldest living inhabitants of that section could carry them, but for how much longer it would be impossible to conjecture. In the early days, and even up to ten or twelve years ago, the true nature of anthrax was as a sealed book to the majority of the inhabitants of the stricken districts, and necessarily the importance of fighting infection, rather than attempting to treat the victims of the disease, did not come up for consideration. Sanitary measures were, therefore, altogether neglected, and, in consequence, the contagion was permitted to spread broadcast by the various agencies capable of disseminating it. The chief source of infection in anthrax is the dead animal that has not received the requisite sanitary care in its disposal. The blood of the carcass just after death contains a teeming mass of living infective organisms, and any agent that comes in contact with the blood and is able to convey it is capable of disseminating the virus wherever it may go. Among these may be mentioned surface water, washing the infected blood into streams or creeks and contaminating their banks, which are frequently grazed, or meadows during seasons of overflow; or in the case of refuse water from tanneries where infected hides have been handled, getting to and infecting running streams; foodstuffs that had been raised on infected lands are frequently soiled with the spores of anthrax, and may convey the disease to distant parts. With us in the Lower Mississippi Valley the carrion birds as well as carnivorous and omnivorous animals running at large are often responsible for its distribution after feeding upon the tissues of the diseased cadaver. The numerous varieties of blood-sucking insects, as horse-flies, very frequently transmit the infection; in fact, these flies are, perhaps, the most responsible agents in the southern country in spreading the disease in its external form after feeding upon the germ-laden blood of the anthrax carcass, which they will do so long as this fluid remains in a warm condition. Pastures that have become infected transmit the disease through the grazing. People frequently contract external anthrax (malignant pustule) through inoculation of

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Southern cattle fever, but have alrea
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however, that this disease which hith
cattle coming South, destroying any

of them, and was the dreaded bane and bugbear of the Southern stockman who was desirous of importing animals of pure breeding to improve and build up his degenerated herds, has been at last "shorn of its terrors," to him, at least, by the immunizing method of blood inoculation. On the other hand, the matter of preventing infection being carried north of the fever line by tick-infested cattle of the South is under the control of the Bureau of Animal Industry at Washington, and the work is successfully accomplished through a rigid system of inspection and quarantine laws. The infective agent in this disease belongs to the animal kingdom, like the germ of malaria, and transmitted by means of the cattle-tick, while those responsible for the other diseases mentioned are bacteria and are members of the vegetable kingdom.

Finally, allow me to state that, to be able to intelligently identify and control a disease of a specific or infectious nature involves on the part of the expert two lines of study. First, the study of the effects produced by the infective germ upon the system of the victim, or what we know as symptoms; the second, a study of the organism itself, including its form, life-history, and everything else that is to be known about it in order to control it, as it, too, is a living entity. An accurate knowledge of each or both can only be acquired by years of painstaking, persistent effort and trained observation. Individuals so equipped are to be found among those who are laboring along these lines for the good of the live-stock interests of the country, from the workers connected with that special branch of the National Department of Agriculture downward, and if, by the earnest co-operation of those who have, or should have, the greatest personal interest in the welfare of the industry—the stock-owners themselves—to afford adequate encouragement and assistance to these workers in their laudable endeavors, the infectious diseases of our farm animals would the sooner be "robbed of their sting," and the whole country be the gainer accordingly.

GASTRO-ENTEROTOMY, WITH REPORT OF A CASE.[1]

By J. Miller, V.S.,
OTTUMWA, IA.

The triumphs in this field of human surgery and the success attending this operation in some of the domestic animals would warrant its more general application. Gastro-enterotomy implies an incision of the intestine through an opening in the abdominal wall. It is the least complicated of all intestinal surgery, but the marked intolerance of some of our patients to any operation of this character demands great skill on the part of the operator in the technical part of the work. We should spare no pains in making ourselves acquainted with the most improved methods, and should by practice make ourselves familiar with the technique. This familiarity can easily be acquired, as we have frequent opportunities to hold post-mortems. It is said a fairly good method skilfully performed is better than the best method clumsily performed. A thorough knowledge of the anatomy is essential to secure the best results. Any ignorance as to the muscles and their disposition, the course of important vessels and nerves, and the arrangement of the intestines and their relation to the other organs of the abdomen, will not only make the operation more difficult, but also more hazardous.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, Cedar Rapids, Iowa, January 14 and 15, 1903.

Gastro-enterotomy is indicated in the following conditions: Coprostasis, foreign bodies in the intestines, and intestinal dilatation. Undoubtedly many lives have been sacrificed from each of these conditions that might have been saved by proper surgical interference. The diagnosis of diseased conditions within the abdominal cavity is not always easy, and every precaution should be taken to prevent arriving at erroneous conclusions. The history of the case should be thoroughly inquired into, a careful examination should be made, and not until proper medication has failed should we resort to any operation. When, however, all other agencies have failed and we are quite sure of the correctness of our diagnosis, and have good reason to believe that the life of the patient can be saved by the use of proper surgical measures, it is a wrong and a shame to fail of our duty and abandon our patient to fate.

PREPARATION OF THE PATIENT. Frequently there is not much time for this, as the suffering is so great and the demand for relief so urgent. The importance of dieting for a day or two previous to operating should not be overlooked, as an empty condition of the stomach and bowels greatly enhances a speedy recovery. It not infrequently happens that the illness of the patient and consequent inappetence has secured this condition. Hospitals are seldom at our command, and in many instances it is difficult to secure a suitable place to operate. A clean place should be selected as free from dust and dirt as possible, and just before operating should be sprinkled with an antiseptic solution.

Having determined on the site of the opening, it should be clipped, shaved, and disinfected. But few instruments are needed in enterotomy, but these should be in readiness before casting the animal and administering the anæsthetic. A couple of scalpels, artery forceps, scissors, a few assorted needles with suitable thread are all that are required. These, with a supply of gauze or muslin and a can of iodoform should be placed within easy reach of the operator. It is important in operations of this character to observe the following considerations with care:

1. The avoidance of all unnecessary hemorrhage.
2. The prevention of the escape of any irritating matter into the abdominal cavity.
3. The union of the divided borders so that they will remain properly joined and result in perfect repair.
4. The avoidance of any unnecessary shock or irritating influence.

The first indication is met by the avoidance of any incision through the lines of an established course of vessels and by the use of needles which do not possess cutting edges. To meet the second indication requires a great deal of care. If the nature of the case will allow, the contents of the viscus should be pushed aside before the incision is commenced. If the length of the mesentery will permit, it is advisable to bring the bowel out on the surface of the abdomen. Should this be impossible, the serous surface can be protected by packing around gauze or muslin saturated with a mild, warm antiseptic fluid. Despite every precaution, occasionally there will escape some of the contents of the intestine into the abdominal cavity. A small quantity can be sponged or wiped up, but if a considerable quantity has escaped and becomes diffused, it is best to irrigate with 6 to 10 per cent. saline solution at a temperature of 112° F. In opening up the abdomen, if the incision is made through the linea alba, the hemorrhage is so slight that no ligaturing is necessary. In making the incision at other points there is more danger of hemorrhage, and not infrequently one or more vessels will have to be tied. This should be done before the peritoneum is incised.

The incision in the small intestines should be made at a point opposite the attachment of the mesentery and parallel with the long axis of the bowel. Any tearing or separation of the mesentery from the bowel should be avoided, as it lowers the vitality and diminishes the probability of repair. In operating on the colon the incision may be either transverse or longitudinal as best suits the convenience of the operator. When chronic dilatation exists it is advisable to remove an elliptical piece, suturing the intestine to the proper size. In fulfilling the third condition sutures of various forms and methods of application are employed, the aim of all being to bring the serous, muscular, and submucous coats in contact and maintain them until perfect union is established.

The fourth indication is very important, especially if the operation be prolonged and tedious. Unwarranted rough handling, dull scalpels, and other imperfect instruments, too large or too small an incision, and all other imperfect conditions tend to increase the shock.

INTESTINAL SUTURE. We have many varieties of intestinal sutures to choose from, but some are too complicated to be practical. My aim, therefore, will be to describe only those having the sanction of practicability. Needles that displace and do not cut the tissues in the passing are the ones employed in intestinal sewing, the common cambric needle being a good illustration of the kind. Catgut or silk sutures are used, but the latter is preferable to the former, as it is not so liable to stretch and allow the parts to separate before a perfect union has taken place. A size suitable to the work is selected and sterilized, the iron being preferable when the suturing has to be done in the abdomen, where it is difficult to make sure of the exact location of each stitch, on account of a poor light or other conditions which obscure the operation. The strength of the suture should be tested lest it should break when applied, confusing the surgeon and delaying the operation. Much stronger thread is required in suturing the stomach of the ox than the intestines of this or other animals, on account of the size and weight of this organ and its vigorous movements.

The sutures should include the serous, muscular, and submucous coats. The borders of the incision should be turned in and the serous surfaces brought together and transfixed by either one of the following methods:

THE CONTINUOUS SUTURE. This is a very useful and a very practical suture in joining the borders of the incision, as it is very easily and quickly applied, the stitches being placed about two lines apart, in this respect differing from cutaneous sewing.

THE GELY SUTURE. A long thread is secured, armed with a needle at each end. The needles are inserted about half an inch from the angle of the wound and carried along the tissues of the bowel for about a sixth of an inch, and brought out on the same level so as to appear on the peritoneal surface. The needles are crossed and passed as before. If a knot is made at each crossing, slipping is prevented. This suture, although a good one, is not so well understood and cannot be as promptly applied.

THE CUSHING SUTURE. In this suture, as in all others, the serous, muscular, and submucous coats are included. The thread is knotted and the needle inserted in a longitudinal direction for about two lines, and is brought out on the serous surface. It is now carried to the opposite side, and, at the same distance from the border of the incision, is passed as before, being carried back again and the process repeated. When the thread is drawn tight the wound is closed and the stitches are concealed.

LEMBERT'S SUTURE. This method is one that is commonly used and is quite reliable. It consists of a number of interrupted sutures which never come in contact with the contents of the alimentary canal. There is no slipping in this method, as each stitch is tied by itself. Each stitch being independent, the premature giving way of any one would not necessarily interfere with any of the rest or result in the opening of the wound, as might occur with a continuous suture.

THE CZERNY-LEMBERT SUTURE. Two rows of sutures are employed in this method, neither, however, passes through the mucous membrane. The first, being the deeper series, are placed quite close to the borders of the incision, bringing them into contact; the second, the Lembert, are placed farther from the borders of the wound and outside of the first series, thus making two rows.

THE HALSTED SUTURE. The Halsted or quilt sutures are similar to those used in the knotting of a quilt. Tying should be omitted when practicable until the sutures are placed.

The methods of closing the opening in the abdominal wall are practised: (1) That in which certain tissues are joined independently with each other, called tier suturing; (2) that in which the borders are joined as a whole, sometimes called suturing en masse. In the former the peritoneum is joined independently with a continuous suture, later the muscles, and, finally, the skin by interrupted or Lembert sutures. The wound should be thoroughly cleaned and dusted with iodoform, and before the opening is completely closed the air should be forced out by pressing the walls of the abdomen. In the latter method the borders are transfixed by using two needles passing from within outward, thus reducing to a minimum the probability of infection. Although this plan is the best, the transfixing may be done in the usual way, using but one needle, and passing from right to left, or the reverse, penetrating one side from without and the other from within. In the small animals this latter method is quite safe and just as effectual.

AFTER-TREATMENT. The patient should be kept as quiet and comfortable as possible. No solid food should be allowed for six or seven days. Small quantities of water, milk, or oatmeal solution can be given. Sometimes the pulse becomes very feeble and the strength of the patient rapidly runs down, showing that the system has been greatly disturbed by the operation. This is what is commonly called shock, and should be met by the use of stimulants hypodermically, followed later by subcutaneous injections of saline solution in extreme cases. Peritonitis is one of the most likely complications, and should be overcome by fomentation and morphine. Nutritious enemas may be used to keep up the strength. The wound may be coated with collodion, or, where practicable it may be protected by sterilized gauze held in position by a broad body-bandage. Because of unfavorable circumstances it is difficult to get union by first intention, therefore, it is wise to examine the wound on the second day, and, if need be, dress it once a day. Where there has been considerable infection of the abdominal cavity, the symptoms become alarming, it is best in such cases to open the wound and irrigate the cavity with a weak bichloride solution, 1 : 10,000. Occasionally the stitches will give way before union of the borders has taken place, demanding re-suturing.

In connection with this paper I have two cases to report:

The first was a case of coprostasis in a member of the bovine family. Strictly speaking, this case does not come within the title of this paper, but, as it bears such a close analogy, I have thought best to include it. The operation was one of rumenotomy on a dairy cow in the prime of life. The first operator has failed in securing union of either the stomach or the abdominal walls, and I was called to complete his work. Both openings were gaping at the time, and the movements of the stomach could be easily seen. The cow did not seem to be much inconvenienced and ate reasonably well of the soft food given her. The first sutures giving way before perfect union had taken place, I found it necessary to again apply them to permanently close the openings, this making the third time the parts had been sutured.

The second case was one of foreign bodies in the intestines of a pug dog. This little sufferer has been sick for about ten days. The symptoms were those of inactivity of the bowels, occasional ineffectual attempts at defecation, with languor and vomiting of all solid food and medicine for the last few days. The obstructions were found to be in the floating colon, and consisted of two intestinal concretions, spherical in shape, almost one inch and a half in diameter and made up of pieces of bones and sand cemented together with alimentary matter and as hard as a rock. He rallied from the operation in good shape, and, although quietude was enjoyed, he insisted upon going about the house, and even up stairs, and refused to be carried. Primary union in the wound was realized, and there was no suppuration except at the points where the stitches were inserted. The stitches were removed on the seventh day. By this time he was practically well, save a little complication which occurred at the time of administering the anæsthetic, viz., keratitis. No bandages were used in either case. The wound was dusted with equal parts of talcum and tannoform two or three times a day.

What I have said is based upon a limited but successful experience, and I am of the opinion that this and other operations for the relief of neoplasms, volvulus, intussusception, and strangulation should be, and I doubt not will be, performed more frequently.

ULCERATIVE ENTERITIS IN THE HORSE.[1]

By G. L. Buffington, D.V.M.,
BAXTER, IOWA.

The essential organs of digestion, the stomach and intestines, being charged with the complex process of converting food into nutriment which may be assimilated, and thus used in building up and maintaining all tissues and organs of the animal body, are, of necessity, very complex in their organization. That they are capable of disintegrating and separating the various foods into material which can be used in building up all parts of the animal, by supplying it with the required nutriment for maintaining heat and energy, is evidence that they have a vast amount of work to perform and that the physiological process is very complex. The anatomical construction also favors the physiological process. The great length of the alimentary canal, the irregular dilations and sacculations and the longitudinal bands with which it is traversed, give to it a very extensive surface to present to the alimentary matter in its onward passage through the canal. It also tends to stay its progress until all the material has been subjected to the digestive fluids, so that nothing can escape which may be utilized for nutrition. The normal peristaltic movements also assist digestion by increasing the secretions and producing a more thorough mixture of the alimentary matters.

Considering, then, that all the functions of the alimentary canal must be performed in a normal condition in order to insure perfect health, and that it is compelled under so many circumstances and environments to carry on this process of digestion and assimilation under abnormal conditions, it is not strange that we find the digestive organs of the horse subject to many diseases. In this view we may regard the disease as a transformation from the physiological to the pathological conditions brought about by some abnormal condition of the food or environment, or by infection.

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[1] Read before the Fifteenth Annual Meeting of the Iowa State Veterinary Medical Association, Cedar Rapids, Iowa, January 14 and 15, 1903.

We wish to consider briefly but one of the many diseases of the digestive organs of the horse. Ulcerative enteritis is so closely related to some other intestinal affections, that it is often difficult to distinguish between them.

SYMPTOMS. The symptoms are often obscure at the beginning, but soon manifest themselves in such a decided manner, that the attendant is convinced he has a very serious case to deal with. The first symptom usually observed is refusal of all food, or if he is at pasture, where this would not so readily be observed, a profuse diarrhœa first attracts the owner's attention. The horse appears dull and languid; a general tucked-up appearance is observed; the buccal mucous membrane is usually red, and in cases of a subacute type the membrane is ulcerated, as is also the tongue; petechiæ cover the nasal mucous membrane and sore spots sometimes appear under the alæ of the nostrils, though this is not a constant symptom. There is usually a foul odor in the mouth; the pulse is accelerated and feeble; the temperature is not usually high, ranging from 102° to 104°, or perhaps as high as 105°. Diarrhœa often sets in early in the disease, and, if the inflammation is not intense enough to destroy life quickly, the evacuations become liquid and dark-colored, and in some cases run from the anus in a stream without any expulsive effort on the part of the horse; borborygmus is present; a craving for salt was observed in one case, though it refused all food. As the disease progresses the symptoms are indicative of the most intense pain. The animal will roll around in every conceivable shape. I have observed them to roll upon the back and remain in that position for some time as though it afforded some relief. The veterinarian called at this time might mistake the symptoms for those of spasmodic colic, but an examination of the pulse, which is now very rapid and feeble, will convince him that he has something much more serious than colic to deal with, as in colic the pulse is normal, or nearly so. The character of the pain is also different. In colic it is subject to remissions, while in this form of enteritis it is constant. Manipulation or pressure over the abdomen will reveal the watery contents of the bowels, and also will often cause the animal to evince pain.

COURSE OF THE DISEASE. The course of the disease may vary from one to three days in acute to as many weeks in subacute cases. A large percentage of cases prove fatal, but when recovery does take place it is very slow.

TREATMENT. A considerable number of horses suffering from this disease are beyond the reach of medical treatment before the veterinarian is called, and I believe most of them are hopeless from the outset. Where the symptoms are not so aggravated but that there is some hope of recovery, beneficial effects may be expected from the application to the abdomen of blankets wrung out of hot water and these covered with dry ones. Opiates are to be given to relieve the pain and quiet the action of the bowels. If diarrhœa is established, subnitrate of bismuth, prepared chalk, gentian, and ginger, along with opiates. In one subacute case which had refused all food for six days and then began purging, I gave the following prescription: Prepared chalk, gentian powder, subnitrate of bismuth, potassium chlorate, each four drachms; powdered ginger, two drachms.

This was mixed with a quart of milk and three or four eggs, and then four drachms of tincture of chloride of iron added and given three times a day. The patient began to improve in about two days and made a complete, but slow, recovery.

POST-MORTEM APPEARANCES. The lesions on post-mortem examination are well defined and very severe. No tympanites is present, but the intestinal canal is filled with a dark-colored, watery fluid; in no case have I observed any trace of any solid excrement in any part of the intestinal canal. The wall of the large colon and cæcum is thickened to four or five times its normal thickness, though this thickening is not uniform in all parts of the intestinal walls. Some portions will be necrosed and of a green or black color. The internal surface of the colon and cæcum is dotted with ulcers of various sizes up to about one-half inch in diameter. These ulcers are irregular in outline with ragged margins, and are sometimes raw and sometimes covered with yellowish exudate which easily scrapes off, leaving a raw surface.

I observed one case in which the ulcerations were more uniform in outline and much smaller than those above described. They were small circular ulcers, and the mucous membrane of both colon and cæcum was studded with them. The small intestine shows inflammation of a catarrhal nature, but I have as yet observed no ulcers in that region. The stomach is somewhat reddened, but I have not seen any indication of much inflammation in that organ.

In some cases there is ulceration of the mouth and tongue. The mesenteric lymphatic glands are somewhat softened. The blood is fluid, dark-colored, and very scant.

ETIOLOGY. I have very little of value to offer on this very important phase of the subject. The cause is as obscure as the treatment is unsatisfactory. It attacks horses of all ages, under circumstances and environments which we would think ought to be favorable to health.

It was observed in a large three-year-old Clydesdale mare last September, that had run in a good blue-grass pasture all summer with a number of other horses and colts, all of which continued in the best of health. In another case, a twelve-year-old, well-bred, large, driving mare that had been running in pasture all summer suckling a colt, became affected on October 11th, and was dead at noon the next day. She was seen on October 10th and was not noticed to be sick, but was found the next morning scouring profusely and died in about thirty hours; so she could not have been sick more than about forty-eight hours at the most.

Another case, pure-bred weanling Clydesdale colt, had been running in good pasture with other colts in daytime during the fall and early winter. They were put in the stable at night and fed oats. On December 4th this colt was observed to be dull and stupid and not inclined to eat, but did not seem much sick until four days later, when I saw him and found a temperature of 104$\frac{4}{5}$°, labored respiration, and quick, feeble pulsation, but not suffering much pain; bowels moving about normal. The following day he began to manifest considerable pain and rapidly grew worse, and on the evening of the next day died. There was no discharge of fæces during the last two days, but on post-mortem examination the characteristic fluid condition of the intestinal contents and absence of any solid material, together with the usual lesions of an inflamed and ulcerated colon and cæcum, determined the seat of the disease.

Another case was a seven-year-old mare that had been kept up on dry feed and worked at light work on the farm. This was but a mild case and recoverd.

The cause is probably to be found in a fungus or mould of some kind which develops on the grass or weeds, though this, so far as I know, has never been demonstrated. The past summer and fall were excessively moist, a condition which would favor the growth of fungus or mould, and it seems to have been more prevalent the past fall than heretofore. At least, it is the first time it has come under my observation.

FOOT-AND-MOUTH DISEASE IN MASSACHUSETTS.

By Austin Peters, M.R.C.V.S.,
CHIEF OF CATTLE BUREAU OF MASSACHUSETTS STATE BOARD OF AGRICULTURE.

(Concluded from page 143.)

Beside sending a letter to the inspectors of animals calling their attention to the existence of the disease, a letter was immediately sent to the Cattle Commissioners, or State Veterinarians, in all adjoining States except Rhode Island, notifying them that a disease existed in Massachusetts, the symptoms of which resembled foot-and-mouth disease, and as it appeared to be very contagious, they were advised to refuse all applications for permits from persons wishing to ship cattle from Massachusetts into their States. This practically gave every adjoining State an opportunity to quarantine against Massachusetts. No notification was sent to the Rhode Island Cattle Commission, as it was evident that there was as much reason to consider Rhode Island infected as Massachusetts.

The following order was approved by the Governor and Council, which acted as a quarantine against all neat cattle, sheep, or swine in Rhode Island:

November 18, 1902.

To Transportation Companies and all Others Whom it May Concern:

By virtue of the power and authority vested by law in the Cattle Bureau of the State Board of Agriculture under the provisions of Chapter XC. of the revised laws and Chapter CXVI. of the Acts of 1902, it is hereby ordered that no neat cattle, sheep, or swine be brought into Massachusetts from the State of Rhode Island until further notice, because of the prevalence of a disorder among cattle, of an apparently contagious character, in the vicinity of Cumberland, R. I., which resembles foot-and-mouth disease.

Inspectors of animals in the cities and towns bordering on the Rhode Island line will see that this order is enforced.

Austin Peters,
Chief of Cattle Bureau.

Approved in Council November 19, 1902.
E. F. Hamlin,
Executive Secretary.

As the situation seemed more threatening, on November 26th an order was adopted by the Governor and Council stopping the market held at Brighton every week until further notice. This order is still held in force.

COMMONWEALTH OF MASSACHUSETTS,
CATTLE BUREAU OF THE STATE BOARD OF AGRICULTURE,
STATE HOUSE.

BOSTON, November 26, 1902.

To the Brighton Stockyards Company and all Others Whom it May Concern:

By virtue of the power and authority vested by law in the Cattle Bureau of the State Board of Agriculture, under the provisions of Chapter XC. of the revised laws and Chapter CXVI. of the Acts of 1902, you are hereby notified that foot-and-mouth disease, which is a contagious disease and is so recognized under the laws of this Commonwealth, exists among cattle, sheep, and swine in some sections of this State, and also in certain localities in Rhode Island.

You are hereby further notified that in order to prevent the spread of this disease this bureau has issued the following order, to continue until the public safety will allow of its being revoked by the Chief of the Cattle Bureau, with the sanction of the Governor and Executive Council:

1. The public market for milch cows, working oxen, store cattle, store sheep, or store swine, held at Brighton each week, is hereby ordered to be discontinued. Beef cattle, sheep, or swine under control of the United States Bureau of Animal Industry, Department of Agriculture, intended for export, are not included in this order. Beef cattle, sheep, swine, or veal calves, except animals from Rhode Island, may be shipped to the stockyards at Brighton, Watertown, or Somerville, provided they are for immediate slaughter.

2. Transportation companies bringing cattle, sheep, or swine into Massachusetts for the stockyards at Brighton, Watertown, and Somerville, are hereby ordered not to accept shipments of milch cows, working oxen, or store cattle, or store sheep or store pigs, for these yards; and are further reminded that no neat cattle are to be received for shipment to other points unless accompanied by the usual permit required under the order of April 23, 1902. The order of November 19, 1902, forbids transportation companies to receive any neat cattle, sheep, or swine from the State of Rhode Island.

3. Transportation companies are also to clean all manure and litter from cars used in local animal transportation after unloading neat cattle, sheep, or swine, depositing it where it will not come in contact with neat cattle, sheep, or swine; and after thoroughly scraping out the car, it must be washed on the floor and sides with a 4 per cent. solution of chloride of lime.

4. Any person violating the provisions of this order will be punished as provided in Section 29 of Chapter XC. of the revised laws.

This order shall take effect upon the day following its approval by the Governor and Council. AUSTIN PETERS,
Chief of Cattle Bureau.

Approved in Council November 26, 1902.
E. F. HAMLIN,
Executive Secretary.

December 1st a special meeting of the Governor and Council was held, giving the Chief of the Cattle Bureau still further power to cope with the disease.

COMMONWEALTH OF MASSACHUSETTS,
CATTLE BUREAU OF THE STATE BOARD OF AGRICULTURE.
STATE HOUSE.

BOSTON, December 1, 1902.

To all Persons Whom it May Concern:

By virtue of the power and authority vested by law in the Cattle Bureau of the State Board of Agriculture, under the provisions of Chapter XC. of the revised laws and Chapter CXVI. of the Acts of 1902, you are hereby notified that foot-and-mouth disease, which is a contagious disease and is so recognized by the laws of the Commonwealth, exists to an alarming extent among cattle, sheep, and swine in some sections of this State. You are hereby further notified that in order to prevent its spread this bureau has issued the following order, to continue until revoked by the Chief of the Cattle Bureau:

1. All neat cattle, sheep, and swine upon infected premises are to remain in quarantine until such time as the Chief of the Cattle Bureau decides that it is proper to release them, and no neat cattle, sheep, or swine are to be brought upon or removed from such premises without his permission, upon any pretext whatsoever. The disposal of the products or manure of such animals, or litter, hay, straw, utensils, and all other material are subject to the orders of the Chief of the Cattle Bureau.

2. All persons not having business upon premises deemed by the Chief of the Cattle Bureau to be infected with foot-and-mouth disease are hereby forbidden to trespass thereon.

3. No auctions or public sales of neat cattle, sheep, or swine shall be held in localities deemed by the Chief of the Cattle Bureau to be infected, without his permission.

4. All persons are forbidden to transport any neat cattle, sheep, or swine over the public highway, or to turn the same upon any unfenced land in such city or town wherein the foot-and-mouth

disease exists, and after notice thereof has been given by the Chief of the Cattle Bureau, without his special permission so to do.

5. All persons are forbidden to tamper with or disfigure any notices posted by order of the Chief of the Cattle Bureau, subject to the penalty of the law.

This order takes effect upon its approval.

AUSTIN PETERS,
Chief of Cattle Bureau.

Approved in Council December 1, 1902.
E. F. HAMLIN,
Executive Secretary.

A great deal of the work for the first two weeks of the outbreak was preliminary to getting matters in shape to co-operate with the United States authorities. Notices of various kinds were printed and sent out, and the necessary steps to be taken became apparent as different phases in connection with the outbreak developed.

The following notice was sent out for the benefit of all interested persons, to be posted in public places and given to interested individuals by the inspectors of animals in infected localities:

COMMONWEALTH OF MASSACHUSETTS,
CATTLE BUREAU OF THE STATE BOARD OF AGRICULTURE.

NOTICE.

Whereas, a contagious disease of cattle, sheep, and swine known as foot-and-mouth disease, and recognized as such by the laws of this Commonwealth, has recently made its appearance in certain localities in this State, and has spread to an alarming extent in certain places. The attention of all persons is called to the following provisions of the law:

Section 11, Chapter XC. of the revised laws, and Chapter CXVI., Acts of 1902.

The board of health of a city or town, any member or agent thereof, or any other person who has knowledge of or reason to suspect the existence of any contagious disease among any domestic animals in this Commonwealth, or that any domestic animal is affected with such contagious disease, whether such knowledge is obtained by personal examination or otherwise, shall immediately give notice thereof in writing to the Chief of the Cattle Bureau of the State Board of Agriculture, or to any of its agents or inspectors. Whoever fails to give such notice shall be punished by a fine, not exceeding one hundred dollars.

Foot-and-mouth disease is characterized by slobbering, or drooling, smacking of the lips, and lameness. Upon a closer examination a vesicular eruption will be found inside the lips, on the dental pad, in the mouth, on the tongue, between or around the digits, and upon the udder and teats. Later the tops of the blisters peel off, leaving superficial ulcerating sores.

It is highly contagious, and may be spread by healthy animals walking upon the highways where contaminated creatures have been driven, by the use of stock-cars which have not been disinfected, by utensils, and by attendants.

All persons are warned against going from infected premises to those where healthy animals are kept.

The milk from diseased cows is unsafe for food for man or cloven-footed animals, unless cooked or properly sterilized.

This malady is a menace to the public health and to commercial prosperity, and all good citizens are requested to co-operate with Federal and State authorities in assisting in its eradication, by reporting all cases that come to their knowledge, and by keeping away from infected premises.

AUSTIN PETERS,
Chief of Cattle Bureau.

STATE HOUSE, BOSTON, December 1, 1902.

Following this was another letter of instruction to inspectors, telling them what they were expected to do within the next few days, and calling for a rapid inspection of all the neat cattle, sheep, and swine in every city or town east of the Connecticut river. Inspectors of animals of the border towns between Massachusetts and Rhode Island, Connecticut or Vermont, received cards to be tacked up on trees on the highways inside the Massachusetts line, forbidding moving cattle, sheep, other ruminants, or swine across the boundaries of the State in either direction. Placards were also printed and distributed, to be tacked on buildings where the disease existed, forbidding the removal of any neat cattle, sheep, or swine from the premises, or the introduction of any new animals until the quarantine was officially removed by the Chief of the Cattle Bureau. This placard also forbid trespassing on the quarantined premises for fear that persons might carry the infection from one place to another upon the hands, clothing, or shoes.

Other placards were sent out for inspectors of animals to post, forbidding auction or public sales of neat cattle, sheep, other ruminants, or swine in the counties of Essex, Middlesex, Suffolk, Plymouth, Norfolk, Bristol, or Worcester, unless the person wishing to hold such sale had a permit from the Chief of the Cattle Bureau.

Placards were also sent out, to be tacked up in conspicuous places in towns infected with foot-and-mouth disease, forbidding all persons to drive or transport any neat cattle, sheep, other ruminants, or swine over any public highway in said town without a permit signed by the Chief of the Cattle Bureau or his authorized representative, or to turn out any such animals on any unfenced lands until such time as it was declared by the Chief of the Cattle Bureau to be safe for the cattle traffic to be resumed.

All this means a great deal of work, but it can be seen that, after taking all these measures, everything was prepared to proceed with the more active work of eradication.

Within a few days of the discovery of foot-and-mouth disease in Dedham, quarantines on infected herds commenced to pour in from different directions. As soon as the disease was found in a town, placards, already referred to, were sent to the Inspector of Animals to tack up, prohibiting the movement of cloven-footed animals in the public highways or turning the same upon any unfenced lands.

The following is a list of towns declared to be infected which were placarded in this way, giving the dates when the placards were sent to the Inspectors of Animals:

Acton	By ex. 12-6	Maynard	By ex. 12-6
Attleborough	" 12-6	Marlborough	" 12-8
Andover	" 12-6	Methuen	" 12-6
Arlington	" 12-23	Natick	" 12-9
Billerica	" 12-6	Needham	" 12-8
Boxborough	" 12-6	North Attleborough	" 12-6
Bridgewater	" 12-6	North Reading	" 12-8
Braintree	" 12-12	North Andover	" 12-6
Concord	" 12-6	Pepperell	" 12-6
Chelmsford	" 12-6	Quincy	" 12-8
Chelsea	" 12-6	Revere	" 12-6
Carlisle	" 12-6	Stow	" 12-6
Dedham	" 12-8	Sudbury	" 12-6
Dover	" 12-29	Southborough	" 12-6
Everett	" 12-6	Sharon	" 12-8
Framingham'	" 12-12	Wayland	" 12-6
Grafton	" 12-10	Weston	" 12-6
Harvard	" 12-6	Westford	" 12-6
Hudson	" 12-6	Westborough	" 12-6
Hatfield	" 12-23	West Bridgewater	" 12-8
Lincoln	" 12-8	Westwood	" 12-23
Littleton	" 12-6	Watertown	" 12-23
Lawrence	" 12-23		

6 green cards, auction forbidden, etc.,
6 white " posters for buildings infected, etc.,
40 yellow " towns declared infected, etc.,
} were sent to the Inspectors of Animals in each town.

A great deal of the trouble northwest of Boston has been due to an auction, November 17th, at which one hundred head of cattle were sold, and wherever they went foot-and-mouth disease was carried. This auction scattered it to Barre, Mass., and Chester, Vt., as well as to many of the towns adjoining Acton, where the auction was held.

The towns of North Attleborough and Attleborough were infected by cattle brought across the line from Rhode Island. The appearance of the disease in Methuen and other towns adjoining Lawrence was probably due to cattle taken to Lawrence from the Brighton market. The herds which were infected in Bridgewater, West Bridgewater, Quincy, and Braintree received cattle from droves taken from Brighton. How the single herd that had foot-and-mouth disease in Danvers became contaminated it is very difficult to say, as there is no report of any other cases in that immediate locality. The owner of the cattle is a market gardener, and it is possible he may have taken produce to Chelsea and, when he came home, used some of the boxes which had been lying around in Chelsea to feed the cows from.

It is a difficult matter to say, positively, just where the disease came from, but as nearly as can be ascertained it appeared as long ago as August in the neighborhood in Chelsea known as Prattsville, and as Chelsea is next to East Boston, where the foreign shipping comes in, it is not unlikely that the infection was brought over on a foreign steamer in hay or in straw used for packing merchandise, and in some way was carried to one of the places in this locality, and other herds near by were contaminated. As the lines of Chelsea, Revere, and Everett converge at this point, cases have been found in all three places, but the owners of the cattle where the disease existed do not live very far apart.

It is said that foot-and-mouth disease assumes a milder form in summer than in winter, and the herds first infected probably had a form of the disease that was not particularly virulent, and nothing was thought of it. It is very clear that the cow that carried the trouble to Rhode Island went directly from Chelsea to Brighton, and thence to Cumberland. Other cattle from the infected neighborhood found their way later to the Brighton market, until the yards became infected, and in November it was carried in various directions by different animals. The disease was taken to Acton by two or three cows from Brighton, which contaminated the hundred head sold there at auction November 17th.

The inspector of animals of Malden is a veterinarian. He was called in a professional capacity the last of August to see a herd of cattle in Revere which he says showed symptoms of foot-and-mouth

disease; but he supposed that it did
and thought it was probably some
about to go to Minneapolis to a meet
Medical Association, held there the fi
going he says he telephoned to the]
thinking at the time that the herd w
and not in Revere, and supposed tha
requiring anyone to report a disea
character to the local inspector of ar
to be in Revere, the Chelsea inspect
it, and he says that he does not eve
fication. The Malden veterinarian r
and never gave the subject a second
called to the public attention in th
after Thanksgiving. It is therefor
disease existed in the locality of Pı
of August.

As the Inspector of Animals of (
narian, and the Inspector of Animal
a veterinarian, it seems strange tha
inspection of the neat cattle in the
the Chief of the Cattle Bureau to
completed November 15th, no sus
these inspectors; but it is not unl
rounds the cases which had been a
extent that symptoms of the diseas
the disease had been reported when i
hood of Prattsville it might easily
and a great financial loss saved to tl

The following table shows the nui
December 31st and the disposition r

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[1] In fact, the owner of one of the infected herd
of Animals examine his cattle in a professional
which time the inspector called the disease foot-
the above statement is true, the Inspector of Ani
as he should have done, to the Cattle Bureau at t

STATISTICS OF FOOT-AND-MOUTH DISEASE IN MASSACHUSETTS, DECEMBER 31, 1902.

Showing the towns in which the disease has appeared or been suspected, the number of herds and number of animals quarantined, number released, number killed, etc., to date.

NEAT CATTLE.

Towns.	Quarantined.		Released.		Killed by U. S. Government.		Apprais'd value.	Per cent. paid.
	Herds.	Cattle.	Herds.	Cattle.	Herds.	Cattle.		
Abington,	1	21	1	21				
Acton,	11	172	...	...	8	129	$4,625.00	$4,132.50
Andover,	1	47						
Arlington,	1	13	...	...	1	(18)[1]		
Attleborough,	2	48	...	...	2	47	1,895.00	1,326.50
Auburndale,[2]	...	...	...	...	1	1	55.00	38.50
Avon,	1	4	1	4				...
Barre,	2	30	...	...	2	37	1,530.00	1,071.00
Belchertown,	1	1	1	1				
Billerica,	1	46	...	...	1	46	2,415.00	1,690.50
Boston,	2	18	1	8	1	10	525.00	367.50
Boxborough,	2	43						
Boxford,	1	6						
Braintree,	5	95	3	60	2	36	1,384.00	968.80
Bridgewater,	2	21	...	...	1	19	840.00	588.00
Brockton,	4	84	4	84				
Burlington,	3	39						
Carlisle,	5	64	...	...	4	60	2,665.00	1,865.50
Chelmsford,	2	72	...	...	2	59	2,885.00	1,997.50
Chelsea,	4	27						
Cohasset,	1	2	...	...	1	2	....	80.00
Concord,	17	336	2	51	12	275	13,718.50	9,602.95
Danvers,	1	7	...	...	1	7	315.00	220.50
Dedham,	3	64	...	...	3	26	1,198.00	838.60
Dover,	1	24						
East Bridgewater,	8	52	3	52				
Easton,	1	7	1	7				
Everett,	1	6						
Framingham,	2	56	...	...	2	55	2,965.00	2,075.50
Gloucester,	1	1	1	1				
Grafton,	1	10	...	...	1	10	485.00	339.50
Hanover,	1	14	1	14				
Harvard,	1	6	...	...	1	5	....	125.00
Hatfield,	1	50						
Hingham,	1	17	1	17				
Lawrence,	1	5	...	...	1	5	260.00	182.00
Leominster,	1	1						
Lexington,	1	1	1	1				
Lincoln,	4	140	1	50	2	96	4,705.00	3,293.50
Littleton,	10	172	1	17	1	30	1,020.00	714.00
Lowell,	1	1						
Marlborough,	3	49	...	...	3	48	2,414.00	1,689.80
Marshfield,	1	5	1	5				
Methuen,	7	188	...	...	2	25	1,269.00	888.30
Middleborough,	2	14	2	14				
Milton,	1	2						
Natick,	1	16	...	...	1	14	750.00	525.00
Needham,	2	32	...	...	1	29	1,558.00	1,087.10
North Andover,	2	85	...	...	2	87	3,990.00	2,793.00
North Attleborough,	1	5						
Northborough,	1	8	1	3				
North Reading,	1	25	1	25				
Pepperell,	3	8	...	...	1	2	55.00	38.50
Quincy,	9	112	6	82	3	31	1,455.00	1,018.50
Randolph,	1	14	1	14				
Raynham,	1	1	...	...	1	3	125.00	87.50
Revere,	1	32						
Saugus,	1	1	1	1				
Sharon,	2	39						
Somerville,	2	9						

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[1] Killed, as owned by Hayden, of Watertown.

[2] Probably included in a quarantine in Sudbury.

Towns.	Quarantined.		Released.		Killed by U. S. Government.		Apprais'd value.	Per cent. paid.
	Herds.	Cattle.	Herds.	Cattle.	Herds.	Cattle.		
Southborough,	5	164	1	1	4	166	$8,625.00	$6,037.50
Stow,	1	31	...	...	1	30	1,343.00	940.10
Sudbury,	3	61	...	...	1	1	50.00	35.00
Taunton,	4	83	3	68				
Walpole,	1	4						
Watertown,	2	44	...	...	2	58[1]	2,785.00	1,974.50
Wayland,	2	29	...	...	1	12	1,029.00	720.30
Wellesley,	1	15	1	15				
Westborough,	9	257	1	20	8	215	9,885.00	6,919.50
West Bridgewater,	6	104	...	...	4	97	4,763.00	3,334.10
Westford,	5	60	1	7	3	52	2,069.00	1,448 30
Weston,	3	72	...	...	2	23	1,422.00	995.40
Westwood,	1	85						
Weymouth,	1	7	1	7				
Whitman,	3	80	3	80				
Total,	194	3554	47	780	90	1848	$86,567.50	$62,050.25

144 swine and 42 sheep are included in the above valuation, the special appraisal not being given.

In addition the following animals have been included in the above quarantines, some of which have been affected:

Swine	815	Goats	4
Sheep	122	Horse	1
		Total . . .	942

SUMMARY.

Total number neat cattle quarantined	3554
" " other animals quarantined	942
Grand total	4496
Total number cattle released from quarantine as not affected . .	780

NOTE.—The two right-hand columns in the above table are subject to some slight changes, as complete returns have not been made. Where the appraised value is not given and the price paid appears in the extreme right-hand column, the cattle were bought outright.

In addition to the expense to the United States Government of killing and paying for the diseased animals is the expense to the government of a large number of inspectors detailed on this special work; also the extra cost to the State of Massachusetts for the employment of agents of the Cattle Bureau of the State Board of Agriculture and the disinfection of buildings, to say nothing of the commercial loss to the port of Boston. Another item of expense to the State will be the quarantine expenses. Section 21 of the revised laws provides as follows:

"Section 21. If animals have been quarantined, collected, or isolated upon the premises of the owner or of the person in possession of them at the time such quarantine is imposed, the expense thereof shall be paid by such owner or person; but if specific animals have been quarantined or isolated, under the provisions of Section 5 or Section 19, for more than ten days upon such premises as suspected of being affected with a contagious disease, and the owner is forbidden to sell any of the product thereof for food, or if animals have been quarantined, collected, or isolated on any premises other than those of such owner or person in possession thereof, the expense of such quarantine shall be paid by the Commonwealth."

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[1] This number includes 13 quarantined in Arlington.

The cattle owners will be notified of this provision of the law, and will also be furnished with the necessary blanks upon which to make their claim for the expense of quarantine. These claims will probably be sufficiently heavy to make it necessary for the Legislature to make a special appropriation to meet them, as it is doubtful if enough of the appropriation made for the work of the Cattle Bureau of the State Board of Agriculture during 1902 will be left to meet all the expenses incurred as the result of the outbreak of foot-and-mouth disease.

Besides the losses and expenses already spoken of it must not be forgotten that the loss to the owners of the animals which have been killed will not end with the killing of the animals, as barns where the disease has existed will have to be disinfected, and will then have to be kept empty for several weeks before new cattle can be introduced, and none of the forage on these infected premises ought to be removed for some time to come. This means that a number of farmers will for the next month or two be entirely deprived of their chief sources of income.

With the stringent measures that have been taken for the suppression of the disease the prospects are that it will soon be eradicated. It is to be hoped that in the course of a few weeks more it will be practically a thing of the past, although it may be necessary to keep up a system of inspection in some localities and certain restrictions on the movements of cattle for some time longer than this. As soon as the disease is eradicated the Brighton market can be re-opened and the cattle business resume its former conditions.

At the time of the visit of Dr. Theobald Smith and the Chief of the Cattle Bureau of the State Board of Agriculture to the infected herd in Dedham, November 16th, Dr. Smith carried some glass pipettes with him. Serum from a vesicle on a cow's udder was drawn into the pipettes after pricking the vesicle with a needle, and the ends sealed in a spirit lamp. These were placed in an ice-chest in Dr. Smith's laboratory, where they remained until the following Friday.

Mr. C. A. Dennen, agent of the Cattle Bureau at Brighton, sent

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two cows over to Bussey Institution, which were bought November 19th; also two small pigs, six or eight weeks old. The cows were inoculated November 21st by scarifying the gum under the upper lip with a lancet and rubbing in some of the lymph. One of the pigs was also inoculated in the mouth and between the toes on one fore foot; the other pig was kept to be fed upon the milk of the cows. These cows, after two or three days, developed typical lesions of foot-and-mouth disease in their mouths; one cow also showed very slight signs between the divisions of the fore foot. Neither cow ever showed any eruptions on the udder. They both had a very mild form of the disease, and in two or three weeks seemed to have fully recovered. December 11th the cows were killed, post-mortem only showing cicatrices in the mouths of both where the ulcers had been. In one there were a few ulcers still unhealed. Unfortunately the pig that was inoculated died a couple of days later. Post-mortem made by Dr. Smith showed it to have congestion of the lungs. As the pigs had probably been kept in a warm place and then put in a cold barn, it is to be supposed that the one that died must have taken cold. The other pig was fed the milk from the cows until he was killed, December 11th, but never at any time showed symptoms of the disease.

These experiments were undertaken to furnish additional proof, if any was needed, that the cows seen at Dedham were suffering from foot-and-mouth disease, and when the diagnosis was confirmed by Dr. Pearson and Dr. Law on their arrival, these experiments were advanced far enough to still further strengthen the diagnosis of foot-and-mouth disease.

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VITALITY AND IMMUNITY.

By Carl Schulin, M.D.,
BILLINGS, MONT.

(Concluded from page 156.)

Like a true savant, Goetsch kept silent for ten years and published his results only after the last doubt of success had been removed. His paper appeared in the *Deutsche Medicinische Wochenschrift*, 1901, No. 25. It is followed by a few words of Koch, who says that quite a number of observers found that they invariably obtained good results from tuberculin in cases not complicated with suppuration, not too far advanced, and free from fever. They all agreed that the dose should be very small.

The tubercle bacillus has many features in common with the anthrax bacilllus. Both are aërobic, and the products of the metabolism of both are non-poisonous. Both injure their hosts in the same way, namely, with their affinity to oxygen. When poisons are formed they originate from decomposition of tissues. They are products of necrobiosis, not excretions of bacteria. The anthrax bacillus lives principally in the blood and feeds on the oxygen which the body receives through the lungs. The tubercle bacillus feeds, facultative-anaërobically, on the above-mentioned fifth of oxygen, which apparently is furnished, in and around nuclei, by processes of reduction. The tubercle bacillus always stays in and around nuclei. It interferes with the production of spermin and lives on the very heart of vitality.

When we compare the course of Koch's artificially produced guinea-pig tuberculosis with that of human tuberculosis, we see a striking difference. Koch's guinea-pig tuberculosis is an absolutely fatal disease. Its initial symptoms resemble those of syphilis, with the difference that the tuberculous chancre never heals. Human tuberculosis has only one feature in common with syphilis, that of producing indolent buboes, but it has no chancre. The bacilli, in a case of human tuberculosis, do not enter into the body suddenly, *en masse*, and, as a rule, not through an open wound. They sneak in singly, here and there, and leave no trace behind at the place of their entrance. Quietly they take possession of lymphatic glands or some other parts and make themselves at home.

The human tubercle bacilli alone seem unable to kill men. They produce locally some necrobiosis and remain in the cheesy matter thus produced in a dormant condition. They seem to be unable to resist the slow, but persistent influence of actinic rays which may reach them, and of the now and then appearing leucocytes. They succumb finally and spontaneous cure results. To accomplish the destructive work for which they are so much dreaded, they apparently need some assistance. Obviously they receive this from different kinds of cocci.

The reader is familiar with the way in which cocci enter into the body. As a rule, they are arrested and destroyed in the nearest lymphatic glands, except when they are so virulent as to produce lymphangitis, lymphadenitis, and pyæmia. Sometimes they pass the lymphatic glands and produce inflammation of inner organs. They favor the serous membranes. Pleurisy and some forms of articular rheumatism have been found to be caused by cocci.

When the lymphatic glands are infected with tubercle bacilli, the cocci seem to pass more easily through them and to carry the bacilli with them into the circulation. In the union with the cocci we have to look for the answer to the above-proposed question, why the

tubercle bacilli sometimes so suddenl
all over the body.

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Therefore, it is necessary to recogni
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a discovery as Koch's tuberculin has l
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and mistakes, to-day we see our way
of the greatest objects in preventive
mination of tuberculosis. Together v
Koch will forever be named as one of
human race!

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tuberculin takes effect only before the tubercle bacilli have united with the cocci, or after the cocci have been subdued, but not while both co-operate in full strength.

The next question is, Why does tuberculin produce fever only in a body infected with tubercle bacilli and not in a healthy one? For a possible solution of this puzzle we must go back a little.

As stated above, we are fairly well informed as to the different stages of the retrogressive metamorphosis of albumin through processes of oxidation and hydration. Besides this, however, there is another retrogressive metamorphosis of albumin, namely, through processes of reduction. While the former terminates with compounds rich in oxygen—*e. g.*, urea, carbonic acid, and water—the latter terminates with compounds free from oxygen—*e. g.*, ammonia, hydrocarbons, sulphuretted hydrogen, etc. There is not much known of the intermediary stages of the retrograde reduction metamorphosis. The writer believes that the ptomaines which Poehl puts together with the leukomaines, belong on the reduction side, while the leukomaines belong on the oxidation side.

The oxidation metamorphosis takes place in the protoplasma of living animal and vegetable cells. It is a symptom of life. The reduction metamorphosis takes place in dead albumin under the influence of saprophytic germs. It seems that the products of oxidation metamorphosis all have positive chemotactic force, while those of reduction metamorphosis have negative chemotactic force.

As said before, the first changes from retrogressive metamorphosis are of a physical and not as yet of a chemical nature. Some of the thus changed albumins are very poisonous, and are, therefore, called toxalbumins. No one, however, seems to have noticed that there ought to be two kinds of such physically changed albumin, one leaning toward oxidation and one toward reduction. The writer believes that only those leaning toward reduction are poisonous, while the others are harmless.

In plants a third, similar, metamorphosis occurs, but a progressive one. Plants form albumin, apparently commencing with plain nitrogen, and add other elements and molecules to it, with an upbuilding tendency. Nothing seems to be known of the intermediary stages in the formation of vegetable albumin. We only see that processes of oxidation and reduction work together in a very complicated way. We see that growing plants absorb carbonic acid, reduce it to carbon oxide, excrete oxygen and implant the former into a developing molecule of albumin or carbon hydrate. Apparently this is done by the action of some ferment which originates in the nuclei of certain cells.

The contrast between processes of oxidation and processes of reduction seems to be the essential principle of life. Its elimination means death. This contrast shows itself in the different functions of the different parts of the cell. The protoplasma does its work through processes of retrogressive oxidation metamorphosis, while the nucleus attends to repairing and upbuilding through processes of progressive reduction metamorphosis. The reader will understand how easily, through products of commencing retrogressive reduction metamorphosis, the contrast between protoplasma and nucleus may be eliminated and death caused.

The nucleus, in the nucleo-albumin, contains an albuminous substance which has a much more complicated structure than any of its kin in the protoplasma. And the nucleo-albumin contains, as its molecular nucleus, the spermin, a ferment which has the power of promoting oxidation at one pole and reduction at another. Thus spermin is the chemical nucleus of vitality and the real weapon with which the body protects itself against infection.

Tuberculin, in the writer's opinion, is an oxidation albumin, while the cheesy matter in which the tubercle bacilli are imbedded, contains reduction albumin. Tuberculin is, therefore, non-poisonous, and has positive chemotactic force, but it exists inside of the germs and surrounded by cheesy matter with negative chemotactic force, which keeps the leucocytes away. If this matter is soaked with tuberculin from the outside the leucocytes will be attracted. Inflammation and fever from reabsorption of inflammatory products will be the result. Healthy leucocytes can now destroy the tubercle bacilli. Leucocytes which are weakened by a fight with cocci will not be able to do it. This explains satisfactorily why tuberculin makes no symptoms at all in a healthy body and why it cannot exert its curative influence in cases of mixed infection.

The nature of the immunity which can be produced with tuberculin against the tubercle bacillus is not fully understood. It resembles the immunity against anthrax. There is no tubercle antitoxin; in the same way there is no anthrax antitoxin. The immunity is based on questions of oxidation and chemotaxis, as it is in the case of anthrax. The reader will notice that the abovementioned conditions by which the immunity against anthrax is destroyed, namely, exhaustion from overwork, inanition, refrigeration, etc., all tend to make spermin inert. On the other side, tuberculin, as an oxidation albumin with positive chemotactic force, will tend to increase the number of the leucocytes in the blood and thus stimulate the production of spermin.

In immunity a fundamental distinction should be made between the general power of resistance of the body against infection of any kind and the immunities against special diseases. The former, which is identical with the old-time "vitality," is furnished by certain protective arrangements. While looking at it from a stand-

Nos. 50 to 52, published a synopsis of the latest facts and theories concerning the protective substances of the blood. The narrow limits of this paper do not permit of entering deeper into his arguments, which are rather obscured by a complicated terminology. Suffice it, however, to say that he believes the toxins are not destroyed in the body, but arrested by certain molecules of the protoplasma which he calls side-chains (Seitenketten). Under this impulse other side-chains are formed, break loose, and float around in the blood as antitoxins.

Ehrlich is doubtless on the right track, but he ignores the investigations of Poehl about spermin, and those of Gautier, Kossel and others about albuminous bodies, especially nucleo-albumin. Otherwise he would have seen that protoplasma does not contain the material for the formation of "side-chains," but that the nuclei do!

An interesting fact was discovered by Pfeiffer and Marx, and corroborated by Wassermann, with regard to cholera, and also by Deutsch with regard to typhoid fever. During the process of immunization they found a stage in which the blood does not yet contain the protective bodies, but they exist already in the hæmopoetic organs, spleen, and bone-marrow.

Wassermann demonstrated that the spinal cord and brains arrest tetanus toxin. He showed that mixtures of tetanus toxin and emulsion of spinal cord are non-toxic. The spinal cords of animals which have died from tetanus contain antitoxin enough to protect other animals against the disease. He found that also in the test-tube a solution of tetanus toxin can be made non-poisonous by the addition of rubbed-up guinea-pig brain matter.

Still the toxin thus arrested is not destroyed. It is only chemically bound by the antitoxin, like a metal in a salt, and may reappear under certain conditions. Therefore Ehrlich uses the name of side-chains. In the antitoxin the reader will easily see the spermin!

How different the ways may be in which immunity can be obtained, appears from an interesting observation made by Ransom. He found that red blood corpuscles attract solanin with the cholesterin they contain and succumb afterward to its effects. Certain sera protect the blood against solanin poisoning, and they do this also with the cholesterin they contain.

Immune sera often contain, besides the antitoxins, some compounds which destroy bacteria under symptoms of swelling, paralysis, granular degeneration, and finally dissolution of their bodies. Fraenkel proposed for these substances the name of "lysogenic material." Other substances in immune sera cause, besides swelling and paralysis, a peculiar clogging together of the bacteria. These substances are called agglutinins. There is some discussion about the relation between the lysogenic material, the agglutinins, and the

ABSTRACTS FROM FOREIGN JOURNALS.

FRENCH.

UNDER THE DIRECTION OF S. J. J. HARGER, V.M.D.,
PHILADELPHIA, PA.

ARTICULAR RHEUMATISM IN THE HORSE. The following case related by Altmann clearly demonstrates articular rheumatism in the horse. The subject, a two-year-old filly running in pasture during a cold and wet summer, presented the following symptoms: Pronounced emaciation, poor appetite, intense lameness in the posterior right leg; stifle hot, painful, swollen, with distended synovial membrane; temperature 39.6° C. The following day the hock became swollen, hot, and painful. Two days afterward the stifle symptoms were improved and the articulations of the phalanges in the forelegs became affected. After eight days of treatment the filly was much improved. Then the two knees became inflamed and the symptoms in the right stifle returned, the temperature varying from 39.8° to 41°, and in fifteen days the animal died.

Autopsy. Stifle: Abundant synovia mixed with fibrinous clots, synovial membrane congested, articular cartilage red. *Hock* and *knee:* Increased quantity of synovia, synovials red, cartilage exfoliated. *Pastern:* Vascular synovial. *Heart:* Mitral valves retracted, thickened, irregular and roughened by grayish-white productions, varying in size from that of a pinhead to that of a pea.—*Berliner Thierärz Wochen.*

COLLOIDAL SILVER AND ITS THERAPEUTIC APPLICATIONS. Colloidal silver, or collargol, has the advantage over the other silver preparations, citral and lactal, in that it is not irritating and does not coagulate albumin. It is prepared by the action of citrate of silver upon sulphate of iron. It presents itself in the form of small black grains easily broken and soluble in twenty-five parts of water.

Collargol is preferably administered by friction upon the skin (collargol 14 parts, benzoated lard 100 parts, and white wax 10 parts), or injected into the veins (1:100 in distilled water). In order to prevent infection after surgical operations upon the peritoneum or the uterus, Credé introduced into the peritoneal and uterine cavities from 1 to 4 pills of 0.05 gramme of collargol. Schlossmann proved that microbe cultures can with impunity be injected into the peritoneal cavity of the rabbit if a small quantity of collargol be at veins, especially if the animal possesses a diminished resistance to tuberculosis, and that the pathogenic properties of this virus is modified according to the origin and by prolonged artificial culture; they have also shown that inoculation with human tuberculosis in young bovines produces in about fifteen days dyspnœa, cough, and a thermic reaction, more or less marked, which may be transient or continue for several weeks.

The author endeavored to produce immunity to bovine tuberculosis by injecting human bacilli. The experiments included five calves. One was inoculated into the eye and two into the veins with fresh cultures obtained in the former case from the kidney of a man, and in the latter from expectoration cultivated on potato after passage through a guinea-pig. After disappearance of the thermic reaction, one of the calves inoculated into the veins and the one infected through the eye were tested with tuberculin. The first gave no reaction; the second one of 1.1°. The three calves were then inoculated once or several times with fresh cultures of bovine bacilli. Each inoculation was followed in twenty-four hours by a thermic reaction. Eight or nine months after the beginning of the experiment the calves were killed. Two control calves were infected with bovine cultures; one inoculated into the jugular vein with 30 milligrammes died in thirty days; the other, which received successively 8 and 30 mm., was destroyed two months afterward.

From the lesions found at the autopsy, Thomassen made the following conclusions: Bovida support quite easily large intravenous injections of human bacilli (30 milligrammes); inoculation with a small quantity confers a certain degree of immunity to bovine tuberculosis. Fresh cultures from expectorations possess less virulence than those obtained from internal organs or the milk. The thermic reaction consecutive to the first injection occurs in from ten to fifteen days; after the second and third, in twenty-four hours. It is more marked and more prolonged after inoculation with bacilli than after an injection of tuberculin.—*Rec. de Med. Vet.*

STRYCHNINE INTOXICATION. Danou employed intrapleural injections of sulphate of strychnine, in 5 c.c doses, of a saturated solution, to destroy dogs, whether healthy or diseased. Death follows very rapidly when the nervous system is normal. It is more tardy even when the strychnine is given in larger doses if the nervous system is affected with a disease. This result was seen in the following five cases: Acute meningitis, tubercular meningitis, chorea, Parkinson's disease, and paralysis.—*Rev. Vet.*

SENILE LESIONS OF THE NERVOUS S investigated the senile lesions of the their analogy with the neuronophagia see microscopically the ganglia of thirty old eight to twenty-one years, sacrificed as were free from rabies. In most of the or one-fourth of the capsules of the ga peculiar aspect. Certain nerve cells w The nerve cell surrounded by the endotl by leucocytes; in other points the nerv its chromotophilic elements, and was s phagocytes. The ganglionic stroma its merous leucocytes, which, at certain poin considerable masses. Neuronophagia is, a normal phagocytosis of the nerve eleme pre-existing condition was recognized explaining this change.

These observations give additional proo nikoff as to the role of leucocytes in atro also claims that this senile lesion of the for the ganglionic alterations in rabic In old dogs, therefore, he considers the absence of other signs, insufficient to *Generale de Med. Vet.*

ARSENIC AS A NORMAL CONSTITUENT has made researches upon this question, a milligramme has found this metal in se hoofs of bovines, and hairs and claws found it in animals other than mammals contamination by the industries, such as and other marine animals. Bertrand c nitrogen, sulphur, and phosphorus, arseni constituents of protoplasm. This disco chemists and physiologists, and has a tox medicolegal investigations.—*Ann. de l'I*

TREATMENT OF KNUCKLING. Cailli mare, twelve years old, lame for eighte in the third degree in the right fore-leg. the tendons and exostoses of the pastern,

High double plantar neurectomy was

omy of the perforans and perforatus. The position of the fetlock remained the same and the lameness persisted. Subsequently median neurectomy with mechanical traction permitted the fetlock to reach its normal angle. The author concludes that treatment of knuckling should be attempted in this manner.

[The above operation may become complicated by suppuration of the foot, and better success has been obtained by substituting median neurectomy for high plantar resection.]—*Rev. Vet.*

CHOREA OF THE DIAPHRAGM. Chorea of the diaphragm, clonic spasm of the diaphragm, hiccough, thumps, etc., quite frequent in the horse, may result from the ingestion of cold water (Goubaux), but results most frequently from fatigue. Most authors, among them Thomassen, basing their opinion upon the experimental results of Schiff, contend that the spasms and the cardiac pulsations are isorhythmic.

Dupas relates a case clearly contradicting this view. The attack occurred suddenly after two days of severe army manœuvres. The spasms were regular as to force and rhythm, numbering 86 per minute, very violent, shaking the entire body, especially the thorax. The shock was especially palpable along the cartilages of the asternal ribs, the attachment of the diaphragmatic muscle. There was no contraction of the abdominal muscles. The heart could not be auscultated, but palpation with the hand showed it to beat from 72 to 75 per minute; pulse small and irregular. These symptoms gradually diminished, and in four days the animal had recovered. On the second day the pulse was 50 and the diaphragmatic contraction 60; on the third day these were, respectively, 40 and 25.

Three principal points are called attention to in this observation:

1. The frequency of the spasms, 86 per minute, at the beginning.
2. The changing numerical relation between the spasms and the cardiac pulsations during the course of the disease.
3. The regular rhythm of the spasms contrasting with the irregularity and the intermittence of the pulse.

From the last two conditions the author cannot substantiate the hypothesis of Thomassen, Haubner, and Siedamgrotzky, of the direct excitation of the phrenic nerves by the cardiac pulsations. Physiology teaches that in all fatigued muscle tissue there is a formation of lactic acid whose action upon the nerves provokes contractions; and this principle applies to a fatigued diaphragm. The contractions are comparable to the convulsive spasms of the members seen in the deer and hare chased for long distances.—*Rev. Gen. de Med. Vet.*

REPORTS OF CASES.

TRAUMATIC PERICARDITIS IN A COW.

By John J. Repp, V.M.D.,
AMES, IOWA

April 1, 1901, I was asked to see a three-year-old pure-bred short-horn cow which the herdsman told me had been sick for about a month, lately growing rapidly worse. I found marked œdema about the dependent parts of the body, well-developed serous infiltration of the pleural and the peritoneal cavity, temperature 103°, pulse rapid and small, respiration rapid, and expiration grunting. I made a diagnosis of traumatic pericarditis, gave a prognosis of fatal termination, and advised destruction. The man in charge, however, said he was anxious to try some treatment, as the cow was valuable. Accordingly I prescribed a powder of digitalis, calomel, and squill, to be given with her feed, advised rest and moderate diet. The cow lived until April 11th, on which date I determined to use her as a subject for the demonstration of *paracentesis thoracis et abdominis* to the senior students of the Veterinary Department, Iowa State College. I was not careful as to the amount of fluid withdrawn, as the operation was solely for demonstrative and not for therapeutic purposes. I drew off from the thorax about a gallon of blood-tinged serum, and a like amount from the abdomen. Within an hour after the operation the cow died, death having been hastened, perhaps, by the sudden withdrawal of a considerable amount of fluid.

Autopsy was made at once. The pleural and the peritoneal cavity each contained a large quantity of clear, sanguinolent fluid. The pericardial sac was distended so as to measure about a foot through each axis, and contained about a gallon of yellow, flaky, puriform fluid of bad odor. The pericardium and its contents, including the heart, weighed twenty-five and one-half pounds. The parietal pericardium was one-eighth to one-fourth inch thick as measured in different places, and its inner face and the surface of the epicardium were roughened and covered with a yellow, spongy, fibrinous exudate one-fourth to one-half inch thick, slightly adherent and removable in large cakes. The myocardium and endocardium appeared to the naked eye to be free from any lesion. The lower part of the lung was carnified by the long-continued pressure of the enormously distended pericardial sac. The reticulum contained about a dozen tacks and nails, several of which had penetrated toward the diaphragm. Leading from the reticulum through the diaphragm to the pericardium was a large fibrous mass burrowed in an irregular, indefinite manner by several tracts containing pus. The offending object was not found, although a careful search was made for it in the fibrous mass and in the sac. There is a probability that it passed back again into the reticulum after inciting the inflammatory reaction upon its forward passage.

PERITONEAL FILARIASIS IN THE HORSE.

By John J. Repp, V.M.D.,
AMES, IOWA.

I HAVE frequently observed in the peritoneal cavity of horses in Iowa a nematode worm about as thick as a knitting-needle, and two to six inches in length, with the tail disposed in a spiral manner. My observations have extended over horses varying in age from one to thirteen years. The worms have never in my experience been in great numbers, such as described by MacGillivray, nor have I ever been able to trace evil effects to them. Recently I have identified this worm as the *Filaria equina* Abildgaard (*Filaria papillosa* Rudolphi). Neuman gives the following description:

Body long, filiform, white, attenuated at both ends, and especially behind; mouth small and provided with a chitinous infundibuliform ring, the border of which is divided into four rounded and salient papillæ. Outside this ring are other four submedian papillæ in the form of spinules. *Male*, 6 cm. to 8 cm. long; tail curved in a spiral manner and having eight papillæ on each side, of which there are four pre-anal and four post-anal; two unequal spiculæ enveloped in a transparent sheath. *Female*, 9 cm. to 15 cm. long; tail slightly spiral and terminated in a papilla preceded by two others; vulva situated near the anterior extremity. Ovoviviparous.

These worms frequently occupy the tunica vaginalis along with the testicle, and come out through the incision when castration is being performed. Their presence is recorded in the pleural sac, arachnoid space, subperitoneal connective tissue, and in the substance of the diaphragm, but I have never met with them in any of these positions.

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PARTURIENT PARALYSIS.

Dr. D. R. Kohler, Boyertown, Pa., in his paper before the Schuylkill Valley Veterinary Association, December, 1902, referring to the subject of parturient paralysis, attributes the frequency of the disease in his district to the high feeding of animals kept for milking purposes only. The author noted the fact of the disease rarely occurring after the first calving, but nearly always after the birth of the third or fourth calf, and usually when they are in the best of condition. After describing the group of nervous symptoms the animals display at the onset of the disease, he also referred to the many deaths from inflammation of the bowels and a general discrasia of the intestinal tract.

Referring to the treatment, he considered that animals which, by virtue of their general condition, would be prone to the disease, should have plenty of exercise, little or no grain, laxative food and salines, and prompt removal of the placenta when retained.

Sulphate of strychnine, 2 gr.; Barbadoes aloes, ½ oz.; nitrous ether, ½ oz.; aromatic spirits of ammonia, ½ oz., hourly; then every two hours till signs of recovery; then every three hours, given with a small vial, and Schmidt's iodide of potassium treatment of the mammary glands, and the general management of such cases, of frequent turning and keeping the animals well propped up, had given him the best results in the treatment of this disease.

SURGICAL TREATMENT OF SPLINTS. A horse, five years old, presented at the supra-internal part of the left canon a hard splint as large as an egg—6 cm. long and 3½ cm. wide. The splint caused no lameness, but was merely a blemish. The seat of operation had previously been shaved, disinfected, and an antiseptic dressing applied. After casting the horse and applying an Esmarch bandage the operation was performed as follows: A crucial incision 10 cm. long and 8 cm. wide over the tumor and the flaps dissected away; a crucial incision of the periosteum (which was raised) to the surrounding healthy bone. The tumor was then chiselled off to the normal level of the bone and smoothened with a curette, the periosteum and the skin sutured separately, and the parts dressed aseptically.

In fifteen days the dressing was removed. There was no trace of suppuration. At the seat of operation there was a small enlargement, which afterward disappeared. The horse returned to work in a month. A cicatrix and a scarcely perceptible swelling are the only indications of the splint.—*Zeitschrift f. Veterinarkunde.*

EDITORIALS.

AMONG THE COLLEGES.

THE announcement comes to us of the probable closing of the Veterinary Department of McGill University for want of adequate pecuniary aid. This, the second closing of Eastern institutions, comes as a serious blow to veterinary educational progress in America. It is peculiarly distressing and painful to those who have, in season and out of season, urged higher veterinary education. The work at McGill—formerly the Montreal Veterinary College—has ever been under the direction and care of Professor D. McEachran, and the work of that institution will ever remain a monument of honor and esteem to his unselfish devotion for the advancement of his chosen vocation. In times of depression and adversity, in the periods of the multiplication of mushroom veterinary colleges, from a thoroughly scientific course graded over a period of three years, this institution never wavered from its high sense of responsibility as an educational institution. When its income from student fees was meagre and insufficient for its maintenance the willing hand and open purse of its chief director carried it along and schooled its matriculants in the same manner as in other years, and it can be well and truly said that every graduate from that institution bears generous testimony to the good work so well done. In conclusion, may we not properly ask Canada, with her enormous live-stock wealth and industries, not to see this institution close for want of financial support? What will the province of Manitoba do for future additions to the profession, in that no other college graduates of Canadian institutions are eligible to practice in her Province?

IOWA'S ACTION.

THE action of the Iowa State Veterinary Medical Association in summarily expelling one of their members who was found guilty of conducting a so-styled "Veterinary Correspondence School," should be a wholesome lesson to those who, under the guise of educating men, make fools of such who are inveigled by their glittering advertisements; ruin others by making quacks and impostors of them, and lead them from quiet, wholesome, pastoral lives to the seductive field of the knave and fraud, and ultimately leave them stranded upon the shores of poverty and disgrace. While all this is going on the measure of loss and injury to an ignorant but confiding public is incalculable, and the distress and suffering that follow in their train from ignorance and deceit, in accepting responsibilities they are unable to discharge, can only be feebly conjectured. Now that Iowa has dealt a stinging blow to this fake institution, may we not ask our Canadian brethren, "What are you going to do with your school of like character?"

WE hope to be able in the May number of the JOURNAL to review at some length the legislation that has been enacted in many of the States during the recent legislative sessions. Much progress along wholesome lines has been accomplished, and we are sure that our readers are all interested in the good work.

MONTANA has created by legislative enactment the positions of Chief and Assistant State Meat and Milk Inspectors at salaries respectively of $2000 and $1500 annually, and fixed by the same act the requirements of those eligible to these positions. Happily for the good of this legislation, those filling these positions must be qualified veterinarians.

COMMENCEMENT EXERCISES.

ONTARIO VETERINARY COLLEGE.

THE closing exercises of this College for the season 1902-3 were held March 26th, with the Principal, Dr. Andrew Smith, presiding, supported on the platform by his Worship the Mayor; Dr. Rutherford, Chief Veterinary Inspector, Ottawa; Col. Lloyd, Newmarket; Dr. Cowan, Guelph; Dr. Brenton, Detroit, Mich.; Dr. J. F. Duncan; Professors Lang and Amyot, Toronto University, and Dr. D. King Smith.

After a few introductory remarks by the Principal, the Mayor addressed the graduating class, numbering over one hundred, gathered from all parts of the world. His Worship congratulated Dr. Smith upon the high position attained by the College. He warned the young men that in leaving college they were but entering upon life and that experience in the profession they were entering upon—one of the noblest known—would teach them many things not to be found in books.

Drew, Providence, R. I.; L. A. Evans, Sawyerville, P. Q.; William M. Evans, Elizabeth, N. J.; J. M. Fawcett, Drayton; Alberto C. Fernandez, Buenos Ayres, Argentine; F. J. Fischer, Petersburg, Va.; D. B. Fraser, Forest; C. J. Gillen, Ottawa, Ill.; W. E. Grace, Toledo, Ohio; J. A. Graham, Elkhart, Ind.; J. W. Haffer, Paterson, N. J.; F. Narburn, Mitchell; William J. Hartman, Ladner, B. C.; William Henderson, Toronto; H. E. Houze, Atwood; E. H. Ives, New Hudson, N. Y.; C. B. Kern, Shimerville, Pa.; F. B. Lambie, Brussels; W. J. Lee, Vasey; C. A. Leslie, Belvidere, Neb.; E. W. MacKay, Sawyer; William J. McLevey, Florence; Alexander MacMillan, Sonya; R. T. Mack, South Bend, Ind.; H. S. Maxwell, Salina, Kansas; John H. Meany, Athol, Mass.; F. C. Miller, Dubuque, Iowa; F. D. Monell, Waterbury, Conn.; Vincente Ocampo, Buenos Ayres, Argentine; William O. Oliver, Marinette, Wis.; Byron A. Owens, Massillon, Ohio; J. H. Part, Leigh, Lancashire, England; H. Pomfret, Burnley, Lancashire, England; M. Porterfield, Clifford; T. F. Quinn, Jr., North Adams, Mass.; A. A. Reinhardt, Apple Creek, Ohio; L. J. Richards, Granville, Ohio; George W. Rogers, Rochester, N. Y.; J. C. Rusk, Clifford; W. N. Russell, Buffalo, N. Y.; Fred. W. Schweinler, Jefferson, Wis.; R. A. Sibley, Waltham, Mass.; B. C. Smith, Brigden; William A. W. Sparling, Toronto; E. R. Struve, Parsons, Kansas; Thomas O. Sykes, Sykesville, Pa.; H. J. Taylor, Guelph; L. H. Thurston, Parsons, Kansas; G. R. Tomlinson, Orion, Ill.; C. Van Vlaanderen, Paterson, N. J.; W. M. Walker, Brooklyn, N. Y.; George C. Webb, Akron, Ohio; Guy N. Welch, Groton, Vt.; H. L. Williams, Granville, Ohio; T. W. Wilson, Atwood.

Disease and Treatment. First prize, silver medal: J. H. Part. Second prize: F. B. Lambie. Third prize: C. A. Leslie, C. B. Kern, equal.

Honors: A. H. Chamberlain, J. Chorlton, G. Coates, A. P. Drew, A. Fernandez, F. Fischer, D. B. Fraser, J. W. Haffer, W. A. Henderson, E. H. Ives, W. J. Lee, Alexander MacMillan, R. Mark, J. H. Meaney, F. C. Miller, V. Ocampo, H. Pomfret, T. Quinn, L. Richards, E. B. Struve, T. O. Sykes, H. J. Taylor, G. C. Webb, G. Welch, H. Williams.

Materia Medica. First prize: Ch. Kern, A. H. Chamberlain, equal. Second prize: H. Williams. Third prize: J. Chorlton.

Honors: W. Coover, D. Fraser, T. Fawcett, T. Hartman, H. Houze, E. Ives, C. Leslie, W. Lee, F. B. Lambie, Alexander MacMillan, J. H. Part, W. Sparling, T. O. Sykes, H. Taylor, W. Walker, F. Wilson, G. Webb.

George Bulgin, James McDermid, J. Stelck Mack, J. H. Mann, P. E. Pallister, T. A. Parker, J. C. Taylor.

Materia Medica. P. Ernest Pallister, Daniel J. Seifert, John C. Taylor.

Disease and Treatment. First prize: B. Eddy. Second prize: G. Deming. Third prize: C. Mix.

Honors: J. Badgley, T. Bailey, C. Boissieu, G. Brewster, F. Burt, A. B. Campbell, A. R. Coleman, F. Consaul, G. Cunningham, J. Dilley, J. H. Faust, G. D. Fisher, J. Frank, C. Grantham, G. Johnston, T. Krey, A. A. Lockhart, W. McFadden, A. Mair, H. Mallory, Walter Martin, F. Mathews, A. Munn, S. Murray, T. Nichol, C. A. Philps, C. Randall, Olaf Reed, S. Robinson, T. Scrivener, W. Symms, A. Sexsmith, W. Stuart, A. Van Cleaf, W. Warnock, C. Weagley, F. Whele, W. Zirkle.

Anatomy. First prize, silver medal: Harvey Malloy. Second prize: S. A. Deming. Third prize: A. R. Coleman, Jr.

Honors: Charles Boissiere, J. A. Dilley, G. D. Fisher, J. W. Frank, G. A. Johnston, W. Kinie, A. A. Lockhart, A. M. Mair, Walter Martin, F. V. Mathews, C. C. Mix, A. A. Munn, S. Murray, T. Screvener, A. B. Sexsmith, W. P. Stuart, W. W. Warnock, C. B. Weagley, F. A. Wehle, W. W. Zirkle.

Physiology. First prize, silver medal: G. Deming. Second prize: A. R. Coleman. Third prize: C. Grantham.

Honors: C. L. Boissiere, T. Bailey, J. Frank, D. Fisher, W. Kime, T. Krey, A. A. Lockhart, A. Mair, Walter Martin, F. Mathews, S. Murray, T. Scrivener, W. Warnock.

Chemistry. First prize: A. R. Coleman. Second prize: C. L. Boissiere. Third prize: A. A. Lockhart.

Honors: G. Brewster, E. Beavers, T. Bailey, G. Cunningham, G. Deming, E. Daubert, G. Fisher, J. Frank, C. Grantham, G. Johnson, T. Krey, W. Kine, E. Lathrop, W. Martin, H. Malloy, A. Mair, S. Murray, C. Mix, J. Martin, G. Mathews, A. Munn, O. Reed, William Randall, A. Van Cleaf, W. Warnock, J. White, C. Weagley, W. Zirkle.

Pathology. First prize: A. R. Coleman. Second prize: C. L Boissiere. Third prize: W. Martin.

Honors: F. Burt, L. Burr, G. Brewster, T. Bailey, G. Cunningham, C. Dauber, J. Dilley, G. Deming, M. Faust, G. Fisher, J. Frank, C. Grantham, J. Jervis, William Kime, T. Krey, A. Lockhart, C. Lathrop, C. Mix, H. Malloy, J. Martin, A. Mair, S. Murray, F. Matthews, R. McKenzie, C. Philps, O. Reed, William Randall, William Symms, W. Stuart, T. Scrivener, A. Van Cleaf, F. Wehle, F. Woolley, W. Warnock, C. Weagley, W. Zirkle.

NOTES.

Dog is Man's Best Friend. In a Missouri town, says the *Atchison* (Kan.) *Globe*, a man brought suit for $200, claiming a neighbor had killed his dog, and he engaged Senator Vest to plead his case. The Senator made the following speech:

"Gentlemen of the Jury: The best friend a man has in the world may turn against him and become his enemy. His son or daughter that he has reared with loving care may prove ungrateful. Those who are nearest and dearest to us, those whom we trust with our happiness and our good name may become traitors to their faith. The money that a man has he may lose. It flies away from him, perhaps, when he needs it most. A man's reputation may be sacrificed in a moment of ill-considered action. The people who are prone to fall on their knees to do us honor when success is with us may be the first to throw the stone of malice when failure settles its cloud upon our heads. The one absolutely unselfish friend that a man can have in this selfish world, the one that never deceives him, the one that never proves ungrateful and treacherous, is his dog.

"A man's dog stands by him in prosperity and in poverty, in health and in sickness. He will sleep on the cold ground, where the wintry wind blows and the snow drives fiercely, if only he may be near his master's side. He will kiss the hand that has no food to offer. He will lick the wounds and sores that come in encounter with the roughness of the world. He guards the sleep of his pauper master as if he were a prince. When all other friends desert he remains. When riches take wings and reputation falls to pieces he is as constant in his love as the sun in its journeys through the heavens. If fortune drives the master forth an outcast in the world, friendless and homeless, the faithful dog asks no higher privilege than that of accompanying, to guard against danger, to fight against his enemies, and when the last scene of all comes, and when death takes the master in its embrace and his body is laid away in the cold ground, no matter if all other friends pursue their way, there by the graveside may the noble dog be found, his head between his paws, his eyes sad but open in alert watchfulness faithful and true even in death."

Then Mr. Vest sat down. He had spoken in a low voice, without a gesture. He made no reference to the evidence or the merits of

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the case. When he finished the judge and the jury were wiping their eyes. The jury filed out, but soon returned with a verdict in favor of the plaintiff for $500. He had sued for $200. It is even said that some of the jurors wanted to hang the defendant.

A REFUGE FOR STRAY ANIMALS. A refuge for friendless dogs and cats has been established by the Misses Ritter at their pleasant home in Mount Auburn, near Cincinnati. Neighbors say that no dog or cat was ever turned away from the door. It is the residence of Miss Cecilia Ritter and her sister. Both women have long been known for their humanity toward dumb animals, but Miss Cecilia Ritter has been especially solicitous for their welfare. No stray dog or cat escapes her attention. If they should happen to be injured her dress is never too fine to prevent her stooping and raising them to her arms. Then carefully secreting her charge under her fur cloak, she carries it away to her home, where every effort is made to nurse it back to health. If the cat or dog should be injured beyond hope of being afforded relief, then the two sisters gently carry it to a box on the premises, where it may be asphyxiated with chloroform. Hundreds of crippled animals and fowls have been put away in this manner. In fact, every girl and boy in the neighborhood of the Ritter home is an especially commissioned individual to bring in stray dogs and cats.—*Ohio State Journal.*

TUBERCULOSIS SERUM HAS BEEN DISCOVERED. Dr. Mavmorek, the bacteriologist of the Pasteur Institute in Paris has succeeded after years of experiments in securing tuberculosis serum which in numerous cases has proved a specific cure. Dr. Mavmorek will soon present the results of his investigation to the Paris Academy of Science.

The discovery was completed nine months ago, but Dr. Mavmorek hesitated to make it public because he feared the demand for serum would have been so great that he would have been unable to satisfy it at that time.

GERM OF RABIES FOUND (?) According to *Il Secolo*, of Milan, an Italian scientist has discovered the microbes of hydrophobia. At a recent sitting of the Medical Society, Professor Sormagni, of the University of Pavia, announced that after a long series of experiments he had at last succeeded in isolating the microbe in question.

It is a well-known fact that Dr. Pasteur's treatment of the disease has not been controlled with absolute scientific certainty, owing to the fact that the bacteria producing the disease have not been sufficiently identified.

Dr. Racolli, the highest medical authority in Rome, says that if Profesor Sormagni's claim can be proved there is no reason why the treatment of hydrophobia should not become revolutionized and take its place among the few exact sciences of materia medica.

HOSPITAL FOR BIRDS. Although New York has many shops for the sale of birds, their belongings and requirements, only recently has it possessed a hospital for the reception of feathered sufferers. So far as is known, also, this is the only institution of this kind in existence anywhere, according to the New York *Commercial Advertiser*. Miss Virginia Pope, the proprietress and head physician, is an enthusiastic lover of birds. She has made their anatomy, nature, habits, idiosyncrasies, and ailments the study of her life, even going to the Black Forest and remaining there for a considerable period in order to thoroughly acquaint herself with canaries. She not only goes out to visit sick birds professionally at their owners' residences, but maintains this hospital and sanitarium, where she receives feathered patients and ministers to their woes with the gentle and skilled attention of a trained enthusiast, and she also takes in as boarders pet birds whose owners are compelled, through absence from the city or some other reason, to part with them temporarily.

The establishment consists of several rooms. The largest is that allotted to the boarders of the bird community. It is a triangular-shaped one of considerable size, the base of the triangle facing the street, and being almost all window, with a southern exposure. The bright sunshine came pouring in, and the floods of melody issuing from more than one hundred fluffy little throats made it seem a very happy place when the reporter called a day or so ago. All along the walls hung cages with small occupants—canaries, thrushes, orioles, etc., generally one in each cage. Near the window stood an aviary containing a happy family of about a dozen birds of different species—goldfinches, bullfinches, linnets, and Java sparrows—all living in amity.

There were also several paroquets, a splendid pair of cardinals, an inquisitive-looking robin, and a soft-voiced parrot. Although this was the boarders' room, some of the birds in it were former patients that, having recovered from the ailment or operation which necessitated their sojourn with the doctor, were now advanced convalescents, soon to be restored to their rejoicing owners. In the inner rooms were the little bipeds under medical treatment. Birds are subject to many of the ailments to which human flesh is heir. They have, according to the doctor, rheumatism, dyspepsia, asthma, consumption, palpitation of the heart, fevers, paralysis, and even corns. Some of the patients were in bed. The bed is a little pasteboard box; the mattresses are made of soft old linen damask, and the bird is tucked in carefully and comfortably, only his little round head and bright eyes being visible. Asthma is the form of disease to which birds are most liable, and most of the patients here suffer from this trouble. Asthmatic patients are treated by having a hot water-bag placed on top of their cages and a flannel cloth thrown over all—a small space being left for breathing air to enter. Sometimes, too, the bird is made to lie on a flannel-swathed hot water bag.

Heat is the most important factor in the medical treatment of birds. The paraphernalia in evidence here for the alleviation of bird illness is quite a formidable one. Besides the hot water bags and thermometers, bandages, rubber gloves, bird-sprinklers, medicated cotton, and bottles of all kinds of medicine and cocaine are visible. All these enter into the healing processes carried on at the sanitarium. Both allopathic and homœopathic remedies are resorted to, according to the nature of the ailment. Massage also is found to be very beneficial in some cases of bird trouble.

A very powerful microscope was at hand—an instrument frequently used in the examination of patients. Not only sufferers from diseases are treated here—victims of accident also are often brought and successfully treated by the doctor, who is a skilled bird surgeon. A bird with a broken leg has it set and bandaged, after which it is put in the bandage swing, formed of a strap of strong linen with two slits cut in it. The bird's legs are inserted in the slits, and he is left to swing until his recovery. Mites are a pest to which canaries are at times liable. They are tiny red insects which prey upon the little victim until his life is sapped away unless something is done to relieve him. If a flannel cloth be placed at night on the cage the mites will be found in the morning to have left the bird for the warm wool. If this is repeated night after night and the cage thoroughly cleansed—kerosene is valuable for this—in time the bird will be rid of the pests.

In two green horses shipped from the West and suffering with laryngitis as a complication of influenza, followed by a persistent cough, spasmodic in character, the use of glyco-heroin gave prompt relief and early recovery from the same in the practice of Dr. W. Horace Hoskins.

SOCIETY PROCEEDINGS.

WISCONSIN SOCIETY OF VETERINARY GRADUATES.

The annual meeting of the Society was held in the club rooms of the Avenue Hotel, Madison, at 3 P. M., February 4, 1903.

The meeting was called to order by the President, J. F. Roub, and the following members answered to roll-call: S. Beattie, J. W. Beckwith, C. M. Crane, C. E. Evans, H. F. Eckert, G. H. Fay, L. M. Jargo, G. E. Leech, W. J. Malone, E. H. Newton, J. F. Roub, E. D. Roberts, D. Roberts, T. A. Schneekloth, Charles Schmitt, S. S. Snyder, and one visitor, Dr. A. J. Alexander.

The minutes of the last meeting were read and adopted.

The Secretary's report was read and accepted.

The Treasurer's report was read and accepted.

On motion, an auditing committee was appointed by the Chair to examine the books of the Secretary and the Treasurer.

The President appointed Drs. Schmitt, Evans, and Beckwith, who examined the books and signed them as correct.

Dr. G. H. Fay, an early member of this Society, who had discontinued practice for a time, applied for admission as a new member.

It was moved and seconded that Dr. Fay be accepted as a new member by paying a membership fee of $3.00 and one annual due of $2.00 for the year 1903. Carried.

Dr. Fay responded by thanking the Society for the action it had taken, and promised to become an active member.

The subject of holding our next semi-annual meeting in Milwaukee was discussed in a lively manner by Drs. Schmitt, Evans, Roub, and Beckwith, which resulted in a motion, that was seconded, that we hold our next meeting in Racine. Carried.

Dr. Alexander addressed the meeting with a nice little talk on horse-feed and horse-feeding, which he sweetened at the beginning with molasses, but as the doctor proceeded to illustrate the disadvantage of using molasses as food for horses, and its inferior value as compared with good oats, that sweetness turned to bitterness in a decision against the molasses.

On motion, a vote of thanks was extended to Dr. Alexander.

On motion, the Society adjourned to meet at 7.30 P.M.

EVENING SESSION.

The Secretary read a bill, offered by State Veterinarian Roberts, relative to prohibiting the importation of Western-branded horses into Wisconsin without a veterinary inspection, as a great deal of glanders and other contagious diseases is brought East by this class of horses, and a change was proposed that, in place of Western-branded horses, it should read Western horses, branded and otherwise.

The President, in view of the fact that several members had violated the code of ethics by placing on the market proprietary remedies, asked the

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Secretary to read the code, which was read and discussed by all the members present.

Motion was made and seconded that the Chair appoint a committee of three members to revise the code of ethics and make it more lenient. Carried. The Chair appointed Drs. R. S. Heer, G. H. Fay, and S. S. Snyder.

It was moved and seconded that the committee report at our next meeting. Carried.

The Secretary read a bill, framed by the Committee on Legislation, for the purpose of establishing a Veterinary Examining Board; also a letter from Superintendent Whitehead advising the substitution of medical doctors on that board in place of veterinarians. On motion, the Secretary was instructed to answer Mr. Whitehead's letter, declining to change the original bill.

Dr. R. S. Heer read an excellent paper on "External Ulcerative Anovulvitis in Cattle," which was discussed by Drs. D. Roberts, Alexander, Leech, and Schmitt. Dr. Beckwith reported a similar outbreak in his own herd.

Dr. Snyder reported a peculiar case of influenza in a horse in which the animal had intermittent attacks of digestive trouble for several weeks, which was discussed by Drs. D. Roberts, Alexander, and Leech.

On motion, the Society proceeded to the election of officers, which resulted as follows: President, Dr. S. S. Snyder, Cedarburg; Vice-President, Dr. R. S. Heer, Platteville; Secretary, S. Beattie, Madison; Treasurer, Dr. Charles Schmitt, Dodgeville; Censors, Drs. J. W. Beckwith. G. H. Fay, and H. F. Eckert.

Dr. E. D. Roberts reported several outbreaks of rabies throughout the State, which was discussed by several members.

Dr. Leech, who is an honorary member, moved that the Society accept his usual annual dues. The motion was seconded and carried.

Motion was made and seconded that the Society uphold the just acts of the State veterinarian. Carried.

On motion, the Society adjourned to meet at Racine, subject to the call of the President and Secretary.

S. Beattie,
Secretary.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

The annual meeting was held at the Odd Fellows' Temple, Broad and Cherry streets, Philadelphia, March 3 and 4, 1903, President W. L. Rhoads in the chair, the following members and visitors being present:

Members: N. H. Allis, Wyalusing; F. S. Allen, Philadelphia; W. G. Benner, Doylestown; Henry Bowers, Collegeville; John Bradley, Mercersburg; J. F. Butterfield, South Montrose; T. S. Carlisle, Chestnut Hill; H. B. Cox, Philadelphia; M. E. Conard, West Grove; John M. Courtright, Clark's Green; M. J. Collins, Myerstown; D. A. Diemer, Spring City; H. P. Eves, Wilmington, Del.; H. B. Felton, Olney; Frank W. Fernsler, Lebanon; J. C. Foelker, Allentown; W. H. Fry, Pine Grove Mills; G. M.

Fuller, Philadelphia; E. A. Gruver, Richlandtown; S. J. J. Harger, Philadelphia; F. F. Hoffman, Brookville; W. Horace Hoskins, Philadelphia; J. S. Houldsworth, Manayunk; H. P. Keely, Schwenksville; Morris W. Keck, Slatington; W. S. Kooker, Philadelphia; W. H. Knight, Kennett Square; Charles Lintz, Chester; E. S. Moyer, Blooming Glen; C. J. Marshall, Philadelphia; J. C. McNeil, Pittsburg; H. D. Martien, Philadelphia; L. E. Meade, Tunkhannock; W. H. Mattson, Camp Ground; M. Moriarity, Gettysburg; Otto G. Noack, Reading; George Magee, Uniontown; O. M. Norton, Coatesville; Leonard Pearson, Philadelphia; E. M. Ranck, Glenolden; James B. Rayner, West Chester; J. B. Raynor, Milestown; W. L. Rhoads, Lansdowne; W. H. Ridge, Trevose; Frank Standen, Philadelphia; A. F. Schreiber, Philadelphia; B. F. Senseman, Philadelphia; E. K. Shaub, Lancaster; E. E. Tower, Montrose; J. H. Timberman, Wilkesbarre; E. E. Terry, Holmesburg; H. W. Turner, Lahaska; Benjamin Underhill, Media; V. B. Weaver, Center Valley; A. W. Weir, Greenville; B. T. Woodward, Oxford.

Visitors: H. S. Stoker, H. M. Cullen, E. S. Dembler, C. M. Hench, T. J. Mahaffy, C. H. Woodruff, S. T. Young, N. B. Fleming, S. Reed, H. E. States, R. F. Burton, G. W. Teufel, J. B. Tiffany, J. N. Becker, G. H. Hart, W. D. Fulton, J. H. Morse, D. E. Hickman, H. B. Hood, Dr. Harshberger, Frederick Stehle, A. H. Shields, H. K. Copithorn, Henry Jarrett, F. H. Collins, A. H. Metzger, Mark White, Jr., S. W. Nisley.

President Rhoads delivered his annual address in his usual interesting manner.

The following officers were regularly nominated and elected for the ensuing year:

President: Dr. E. M. Ranck.

Vice Presidents: Drs. F. F. Hoffman, J. C. McNeil, and J, H. Timberman.

Treasurer: Dr. Francis Bridge.

Recording Secretary: Dr. H. B. Felton.

Corresponding Secretary: Dr. C. J. Marshall.

Trustees: Drs. Leonard Pearson, James B. Rayner, W. Horace Hoskins, George B. Jobson, and Jacob Helmer.

Meeting adjourned for lunch till 2 o'clock.

The following names were proposed for membership: Drs. L. E. Meade, F. W. Fernsler, B. T. Woodward, F. H. Standen, H. D. Martien, S. H. Gilliland, O. M. Norton, John Henry Farley, and James H. St. Clair. These applications were referred to the Board of Trustees. The board reported favorably on all except Drs. Farley and St. Clair. These names were to be returned to the applicants for the proper vouchers. The other applicants were regularly elected to membership.

In the absence of some of the members of the Board of Trustees the President appointed the following as temporary members of this board: Drs. H. B. Felton, B. M. Underhill, W. H. Ridge, W. S. Kooker, and F. S. Allen.

Dr. E. M. Ranck read his report as Corresponding Secretary. It was regularly accepted and filed. Dr. Ranck also read a letter from Dr. J. C. Michener, of Colmar, submitting his resignation. The letter was referred to the Board of Trustees. They recommended that his resignation be accepted and that he be elected to honorary membership. This was unanimously adopted.

The Treasurer's report was read by the President. It was regularly accepted and filed.

In the absence of Dr. George B. Jobson, Secretary of the Committee on Legislation, this report was postponed till later in the meeting.

Dr. Hoskins made a verbal report for the Committee on Army Legislation. He said, in part, that very little had been done in the past three years on this subject, yet the general status of the veterinarians in the army had been markedly improved by the work that has been done. He thinks that official recognition with rank is a possibility of the near future.

Dr. Noack made a few remarks on Dr. Hoskins' report. He thinks that one important move in getting the proper recognition would be for the veterinary colleges to raise their requirements for entrance.

The Committee on Sanitary Science and Police made no report.

A carefully prepared report was made by Dr. Helmer for the Committee on Milk Inspection, which was unanimously accepted and filed with the Secretary. Dr. M. E. Conard, as a member of this committee, made an interesting verbal report.

The Committee on Intelligence and Education, Dr. H. B. Felton, chairman of this committee, gave an interesting and carefully prepared report, as follows:

Report of Committee on Intelligence and Education.

The past year has been one of phenomenal prosperity in the business world. Sharing in this prosperity the veterinarian has had no cause to complain of dull practice or lack of adequate compensation. Despite the threat of the automobile, the horse is still with us in large and imposing numbers and with an average monetary value so great that his owner dare not discard the services of the veterinarian. The horse is still the faithful and efficient servant of the Government in carrying the mails and in the cavalry and artillery service. In Berlin, Germany, recently they became very aggressive, and displaced the horse by the electric automobile in the mail service. After a few weeks' trial, however, it was found that the electric automobile, in all cases, got out of order, and the postal officials, becoming tired of sending horse-wagons after the automobiles, finally discarded them altogether.

In reference to the use of the horse in the army, for the first time in the history of our country the proper treatment of the horse is made the subject of comment and suggestion in a President's message. Mr. Roosevelt asks Congress to make an appropriation to enable the Secretary of War to keep and care for cavalry and artillery horses that have worn out in long service. The friends of our friend, the horse, are everywhere commenting favorably on the suggestion and on the President's thoughtful kindness.

Agriculture is so intimately connected with our profession that this report would not be complete without some reference being made to this subject. We hear much in these days of gigantic corporations with vast aggregations of capital, and when the United States Steel Company was organized recently our eyes were dazzled and our brains made to swim when it was capitalized at one billion dollars. In the meantime the farmer, the man of the hoe and plow, the plain man, the horny-handed son of toil, who earns his bread by the sweat of his brow, was making no boasts or no display, but when the aggregate amount of his invested capital was computed it was found to reach the stupendous sum of twenty billions of dollars. The farmer is still king, and he can walk with majestic strides in the company of the gigantic trusts, towering far above them all and making them look like thirty cents! There are about 5,000,000 farms under cultivation in this country, comprising an area of 415,000 square miles. A much larger area is susceptible of culture, and awaits the advent of the settler to make the wilderness rejoice and blossom as the rose. Forty millions of people, more than one-half the population of the country, reside on farms. The products of American agriculture aggregate annually over $5,000,000,000. Animals annually slaughtered for food possess a value of nearly $1,000,000,000. Dairy products are worth over $500,000,000; poultry and eggs more than $300,000,000. Dairy products have found new markets during the past year in China, Japan, Cuba, and Porto Rico. Recognizing the great importance of agriculture to the welfare of our country, the Government is spending not less than $5,000,000 yearly, and employing an army of experts who are engaged in experimental work and who are searching in all quarters of the globe for new grasses, grains, and fruits. Grasses and forage crops are diligently studied with reference to their adaptation in different sections of the Republic. Not one or two, but many blades of grass will be made to flourish where none is growing now. A special study is being made of soils and their relation to crops. Experiments in feeding are being carried out with a view to economy and securing better results for the labor and skill applied. Bulletins are published from time to time giving the results of experimental work, and these are freely accessible to the farmer. With a generous paternalism the Government is continuing the Congressional distribution of seeds, and particularly of foreign seeds, over a constantly-enlarging area, and with gratifying results. The farmer of to-day is more of a scientific farmer than ever before, and has come to realize that farming can be made to pay when conducted on strictly business lines. Electricity has become his servant, and we see stretching over the country a network of telephone wires, connecting the farmer with his neighbor and with the business world, thus removing his isolation and enabling him to keep his finger on the pulse of the market. It has become an axiom in certaim localities, "If you want to know the news, ask the farmer."

Perhaps more improvements have been made along all lines than along the line of good roads. As Secretary Wilson has observed, " We still need to mend our ways." Why should millions of dollars be spent every year by the great railroad systems for betterments, and millions of dollars be appropriated by the Government for river and harbor improvements, and our highways be neglected, when they are such an important part of the great system of transportation in our country? It is a question of educating the people up to a point where they will realize the great importance of this subject, and we are glad to know that the Federal Government and a number of States are carrying on this campaign of education. The Government has built sample roads in Maryland, West Virginia, Ohio, and North Carolina. In co-operation with the Southern Railway Company it has done educational work in Virginia, North Carolina, Tennessee, Alabama, and Georgia. The railroad company assisted in this because of its conviction that good roads develop the country, and it is therefore helpful to the business of a railroad to have good country roads leading to its stations. We could wish that this idea might find lodgement in the heads of the managers of the Pennsylvania and Reading railroads, for, by their combined efforts, they might do wonders to help along the good cause in Pennsylvania. We have a good roads law on the statute books, which was passed several years ago, but its efficiency has never been tested, because its going into operation is made contingent on the Legislature appropriating $1,000,000 for it, and that provision has acted as a bar to its enforcement. Much is hoped for from the Sproul bill, which will soon be acted upon. There seems to be a disposition, however, in this State to look at the subject of road improvement from entirely too narrow a standpoint, one man being fearful that perhaps his neighbor at a distance will receive more benefit from the tax than he will. There is a need of a broader outlook and a recognition of the fact that good roads, no matter where situated, are a benefit to the whole State. The farmer is finding it to be increasingly profitable to breed horses that conform closely to a certain type, and valuable information on this subject to the farmer, as well as to the veterinarian, will be found in Bulletin No. 37, issued by the Bureau of Animal Industry, entitled *Market Classes of Horses*, by George M. Rommel, B.S.A.

No widespread epidemics among animals has visited our country during the past year. Our island possessions have not been so fortunate, however, as an epidemic of rinderpest in the Philippines swept away 90 per cent. of the buffaloes, which are there used as beasts of burden. Foot-and-mouth disease broke out in Massachusetts, but, owing to the rigid and effective quarantine, did not spread beyond the borders of that State.

The efficiency of the process of Pasteurization of milk in preventing disease among infants and small children has been remarked by the New York city health authorities, who state that during the past year there has been a decided decrease in infant mortality in districts accessible to the depots where Mr. Nathan Straus' philanthropy makes it possible for parents in the tenement houses to get pasteurized milk gratuitously or at a nominal cost.

The fight against tuberculosis is being carried on with increasing vigor and greater effectiveness. No less than eleven States have actively taken up the subject of the prevention of tuberculosis. The Pennsylvania Society for the Prevention of Tuberculosis has prepared a bill asking for an appropriation from the State of $500,000 for the prevention of tuberculosis and the care of incipient cases of consumption in this State. It is proposed to establish sanatoria for the care of poor consumptives in different parts of the State similar to the one at White Haven, where such excellent results have been obtained. As Dr. Anders says, the Government should recognize and seize the opportunity to do this work. He further observes, "the State already provides for the insane, for the feeble-minded, for the defectives, for the deaf and dumb;" yet these do not constitute one-third the number of consumptives. It may almost be said that for selfish reasons alone it is the State's duty to care for poor consumptives. If cholera, smallpox, scarlet fever, or any of the dreaded contagious diseases caused one-fourth the deaths claimed by consumption, remedial measures would be at once taken by the State; and yet consumption kills more than all these contagious diseases combined. England and Germany are becoming more fully awakened to the possibilities of coping with this disease and the economy exercised thereby. Germany has sixty-four sanatoria, and it is said that in fifteen of them 60 per cent. of the patients were discharged as cured. One valuable feature in connection with the sanatoria in Germany is the establishment of convalescent homes, where they are allowed to stay two or three months, thus obtaining a more permanent cure. One of the grandest gifts of recent times is the noble benefaction of Mr. Henry Phipps of $1,000,000 for establishing a hospital for consumptives in Philadelphia. This has long been a crying need in our great city, as none of the hospitals want this class of patients, and, after making the rounds of the different hospitals, in each of which they are only allowed to remain a short time, they virtually become outcasts, and are left to die in homes of poverty, lacking the care and attention that would soothe their last hours and render their lot less pathetic.

The State Live-stock Sanitary Board has done excellent work during the last year, but has been much hampered by lack of funds to prosecute its work. It is to be hoped that it will receive a liberal appropriation for the ensuing year. The exceedingly valuable experimental work of Drs. Leonard Pearson and S. H. Gilliland on the "Immunization of Cattle against Tuberculosis" places our State in the very front rank of those engaged in original work on this subject. Dr. Pearson hopes the State Board will receive an appropriation large enough to enable it to establish a tubercular herd, where experiments can be carried out under natural farm conditions. Dr. E. M. Ranck is at the present time making a study of the organisms that cause distemper, or rhinoadenitis, shipping-fever, and influenza in horses. If he can discover an effective antitoxin he will place the raiser, shipper, and purchaser of horses under lasting obligations to him, as well as adding lustre to our profession.

The Veterinary Department of the University of Pennsylvania has been placed under considerable disadvantage while residing in temporary quarters. We are informed that the architect's plans are now practically finished, and building will commence just as soon as the funds in Mr. Harrison's hands will justify it. A bill has been introduced in Harrisburg to appropriate $200,000 to the University, $100,000 of which is for the Veterinary Department. The outlook for research and original investigation, especially along medical lines, was never so bright as at present with the Carnegie University at Washington and the Rockefeller Institute in New York, magnificently endowed by the millions of their generous donors to stimulate the efforts of the brightest minds our country can produce. By the recent establishment of the several universities—national in their scope—in our country's capital Washington will become the greatest educational centre in the United States, if not in all the world. The standard of education and the requirements of those seeking admission to the professional schools are being gradually raised by our colleges and universities. President Eliot has well said: "Since wise and efficient conduct of American affairs, commercial, industrial, and public, depends more and more upon the learned and scientific professions, the universities owe it to the country to provide the best possible preparation for all these professions." Chancellor Smith, of Randolph-Macon College, has made some very interesting and valuable investigations on the power of education to raise a man above the common lot. He finds that the uneducated person has only one chance in 150,000 of attaining distinction. A common-school education will increase his chances nearly four times. A high-school education will increase his chances twenty-three times over the common-school boy, or nearly ninety times over the uneducated one. The college education increases his chances over the high-school boy about nine times, over the common school boy about two hundred and twenty times, and over the uneducated boy more than eight hundred times.

We cannot close without referring to the sense of gratification we are sure every member of our profession in this State feels at the reappointment of Dr. Pearson as State Veterinarian. Dr. Pearson has filled this position with such conspicuous ability that his name and his fame have become international. We also feel constrained to refer to the noble and heroic efforts of Dr. Hoskins to maintain the publication of the Journal in the face of so many adverse circumstances. The Journal is steadily maintained as a strictly first-class publication in every respect, and is excelled by none. It deserves the hearty support of every member of our profession.

H. B. Felton, V.M.D.,
Chairman.

Dr. Noack, as a member of this committee, made a few appropriate remarks.

The Publication Committee made no report.

Convention Echoes.

Dr. Edgar M. Powell, of Bryn Mawr, Pa., was confined to his bed during the convention sessions.

Dr. C. R. Good, of Lock Haven, Pa., reported his county free from any contagious and infectious diseases, and also great interest in good roads.

The tender of the resignation of Dr. J. Curtis Michener was regretfully received, and his election to honorary membership was a well-merited recognition of valuable work done.

The election to active membership of Drs. S. H. Gilliland, B. S. Woodward, H. D. Martein, H. P. Fernsler, Frank Standen and L. E. Mead will add new strength to the State organization.

The attendance was well distributed from the many sections of the State, about one-half the counties having representation at the convention.

Delaware was represented by the presence of Dr. H. P. Eves, of Wilmington.

Dr. W. H. Fry, of Pine Grove Mills, Pa., was Chairman of the General Committee conducting the Centre County Farmers' Institute in January.

Dr. W. P. Bagnall, of Warren, Pa., has been appointed Inspector of Dairies for his city.

PERSONALS.

At the inauguration of Governor-elect Pennypacker, of Pennsylvania, the following well-known veterinarians were among those who took part in the ceremonies: Drs. M. Moriarty, Gettysburg; Jos. Johnson, West Grove; H. B. Cox, Philadelphia; E. E. Tower, Montrose; A. S. Shimer, Altoona; A. R. May, Boiling Springs; and J. H. Oyler and Wm. Hughes, of Harrisburg.

Dr. R. W. Braithwaite, of Champaign, Illinois, conducts a large veterinary hospital in connection with his practice.

Dr. Jas. B. Rayner, of West Chester, Pa., was seriously ill with La Grippe in the latter part of January.

Dr. W. F. Heyde, of St. Louis, Missouri, has built an addition to his hospital.

Dr. Howard Baker, of the Class of 1902 of the Veterinary Department of the University of Pennsylvania, located at Pittsfield, Mass., reports much encouragement from the people of that city.

Dr. J. R. Mahaffy, of Wilmington, Delaware, is fathering the bill looking to the registration of all veterinarians in Delaware, and the establishment of a State Board of Veterinary Medical Examiners.

Dr. H. B. McDowell, of Middletown, Delaware, takes a keen interest in the work of the Department of Agriculture of the "Blue Hen State."

Dr. C. J. Waidner, of Hellertown, Pa., fills the rôle of County Commissioner and Prison Inspector for Northampton County.

Dr. W. C. Holden, of Delphos, Ohio, conducts a veterinary hospital in connection with his veterinary practice.

Dr. Alex. Glass, of Philadelphia, Pa., spent ten days in bed in the latter part of January from an attack of influenza.

Dr. C. A. Raque, graduate of the American Veterinary College, and formerly located at West Nyack, N. Y., is now an attaché of the Bureau of Animal Industry and located at Chicago, Ill.

Dr. David Martin, of McKeesport, Pa., is the proprietor of the McKeesport Veterinary Infirmary.

Dr. E. D. Hudson, of Fairfield, Pa., is also proprietor of the Mansion House of that city.

Dr. E. R. Hogg, of Wilkesbarre, was confined to his bed for ten days with the "grippe" the latter part of February.

Dr. J. W. Moore, of Waynesburg, Pa., takes a great interest in the subject of "good roads."

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PRESIDENT'S ADDRESS.[1]

W. L. RHOADS, D.V.S.,
LANSDOWNE, PA.

IT is with sincere pleasure I extend to you the hand of good fellowship, which carries with it the appreciation of your presence at this time.

A profession to be most successful must be combined, that the greatest good may accrue to the individual member of that profession and the greater results accomplished through the systematic concentration of the professional efforts under association tutorage and guardianship.

The professional man of good moral character and social standing by complying with certain requirements may, as a rule, become a member of his local, State, or national association. While membership is helpful, this alone does not make him a factor in the advancement of his profession. The advancement of all professions is due to combined efforts as directed through the associations.

Never before has association progress and hustle borne the rich returns that it is to-day. The last annual meetings of the New Jersey, Iowa, Minnesota, and Pennsylvania Veterinary Medical Associations were by far the best in their history. The local associations are also holding meetings of unusual interest. A great amount of this interest is no doubt due to the secretaries, who have advance methods and the past experience of their predecessors to help and guide them. Their post is one of honor, payable only in a great responsibility and limitless work. It is undoubtedly the secretary who does much toward keeping the association grist-mill full and running smoothly and grinding out a fine and impalpable education, as it were, that is absorbed by and is nourishing to all progressive veterinarians, and they are all association men. Yet as a past secretary I cannot but feel that some of the noticeable progress is due to an increased interest of our association members, who have at the request of their secretary furnished a programme of good and wholesome topics, thus making our meetings of unusual interest and importance; thus stimulating and encouraging every veterinarian to greater efforts in the discharge of his duties to his association and fellow veterinarians by the contribution of something toward this advancement.

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[1] Pennsylvania State Veterinary Medical Association. Annual Meeting, Philadelphia, Pa., March 3 and 4, 1903.

Fellow-men: I have always been thankful that a kind Providence allowed me to take up my life's work in a State in which the personnel of my chosen profession was composed chiefly, if not entirely, of men in the fullest, truest interpretation of that word. True, there may be some of us who are not all that our fellow practitioners desire; we all have our shortcomings and differences; true, we do not always agree upon minor points. Yet, when it comes to questions of moment and importance, we are as one.

Zenobia said: "I am charged with pride and ambition; the charge is true and I glory in its truth." It is so with the veterinarians of Pennsylvania individually and collectively. Fellow veterinarians, we have much to be thankful for. We have yet to have one of our number to betray the trust imposed in him and for self-aggrandizement or personal gain turn traitor to those people and principles which he should hold sacred and true, thus causing the finger of scorn and derision to be pointed at him or his association and State throughout the Union.

You cannot know how I appreciate the honor of being one of you or how I appreciate the honor of your Presidency bestowed upon me, not in your younger and immature years, but after gaining your majority, after passing the twenty-first milestone, as it were, upon the pathway of your existence and experience—a pathway which each year has widened out with your increased membership; a pathway which is widening into a broad highway, and, I trust, an improved highway, which we hear so frequently of these last few months.

The veterinary profession of Pennsylvania may congratulate itself upon this unanimity of effort when seeking the greater and more essential things; to this factor more than any other is undoubtedly due our phenomenal growth.

We have asked only for legislation as a dire necessity and only after thorough discussions, and we have invariably received due consideration at the hands of our law-making bodies.

It is no doubt due to the unanimity of action that we owe the retention of our State Veterinarian throughout succeeding administrations—a retention the munificent benefits of which are becoming more apparent year by year—and I wish to take this opportunity to extend to you, gentlemen, my heartfelt thanks and appreciation for your prompt response to one who was selected of our number to bring to your attention—not the necessity, as we feel the present Governor is interested not in politics, but the general welfare of his people, but the propriety of requesting the appointment of Dr. Leonard Pearson as State Veterinarian, more that the Governor might know it was the wish of the people; not that we feared he would remove one whose true worth he already knew and appreciated, and I would here ask that a vote of thanks be extended to Governor Pennypacker for his prompt acquiescence of our request.

We of Pennsylvania readily realize the power of concerted action, though we are undoubtedly strong enough as a profession to wield a mighty influence if our powers are unanimously exerted. We have been taught to thoroughly realize that "in union there is strength," and through disconcerted action we lose all. We never at any time came so near completing a great work; a work which accomplished would have placed our national army equipment on a par with the best of the world, instead of leaving it as it is to-day, a laughing-stock for the entire world; an institution upon which our politicians can spend millions for junketing tours and self-aggrandizement. Yet without a veterinary army corps, an institution whose very heart in the time of need will be found to be eaten by the canker worm of jealousy, for all depend in active warfare upon rapid mobilization, which cannot be accomplished without a thoroughly good equine equipment to be had to the best advantage only through the organized efforts of an organized army corps. An organization that would have been an honor to our nation as well as a money saver, and thus a good investment; an organization that would not only have paid for itself to the nation, but in its saving from what is now a woful, wilful waste, would have returned to our nation a handsome dividend. An organization that would have done much for the horse owner, breeder and raiser; an organization that would have been an honor to our profession. An organization which owed its conception and accomplishment to one whom the politician and his kindred spirit could not lead astray; one who devoted his life to the advancement of the profession; one whose life professionally might be emulated by every veterinarian with personal gain and much credit thus to accrue to the profession. I speak of one who is no more among us; one whose loss those who knew him best most deeply feel, namely, Rush Shippen Huidekoper. His endeavor to complete a veterinary corps—the most beneficial movement in the general advancement of our army known to history—as the crowning of his life's work, was frustrated by a small, disagreeable element led by a Judas Iscariot, who, through his willingness to do the bidding of men who have not the courage of their convictions, has attained to official positions of a sister organization of a neighboring State.

The future of the veterinary profession is at the present time lined with a more roseate hue than ever before. The increase of horse valuations within the last three years has been phenomenal and will undoubtedly continue, being due to the inadequacy of the supply as compared with the demand, and this deficiency is going to increase year by year, until we have the practicably safe flying machine, it being the only mechanical device to even partially supplant our equine friend.

The advent of the bicycle, the trolley car, and automobile, which so many hailed with delight and prophesied that each of them in turn sounded the death knell of the horse, did naught but increase our appreciation of the true worth of the noble steed. The bicycle we seldom see, excepting as a child's method of amusement, or in the hands of the laboring man, who, having a good position away from home, is pushing it along. The automobile is as yet a toy, useful, it is true, in the hands of the wealthy; yet a toy which is destined within a few years to descend from its pedestal of sport and racing qualifications to that of our heaviest hauling and drudgery; if not, then it shall pass with history down the annals of time as an inglorious failure. In spite of all the machinery invented to supplant the horse, he not only holds his own, but will year by year increase his prestige.

With the formation of road drivers' associations throughout our land we will ultimately have the horsemen of this country banded together in one great, fraternal body, the chief aim of which shall be the improvement and advancement of the horse, and to the veterinarians more than to any other body of men should this project appeal. Individually and collectively they should put their feeding of farm animals, but as well upon the diet of the coming two-minute trotter or valuable roadster.

The recent graduate in veterinary medicine, given a full scientific equipment, with his heart and honor in his work, who has a thorough conception of the great field before him, who appreciates but a few of the scientific mysteries hidden therein that he may garner for the advancement of science and the edification not only of scientific men but for the benefit of the masses, may do more toward warding off and preventing dire disease through his thorough knowledge of municipal meat and milk inspection when it is left to his scientific judgment, and he be not subservient to the whim of some political rounder who is kept in power by a gang of boodle politicians, who sacrifice regardlessly the lives of the men and women who are forced to gain their daily livelihood within the confines of our larger cities ; who are forced to subsist upon an unwholesome food supply, inspected probably at best, if it is inspected at all, by an incompetent political inspector, thus making Ruffs and White Haven Institutes necessary throughout the land.

Stop and think of the great mortality among the little children of New York, Chicago, Pittsburg, Baltimore, and Philadelphia, annual victims of an impure milk supply. I will guarantee there is enough filth served to the people of Philadelphia in their supposedly pure milk each year to convert the most arid one-hundred-acre farm in this commonwealth, if used thereon as a fertilizer, far more fertile and productive than the land of Goshen dare be in the height of its prosperity. We cannot expect a great improvement unless the consumer will look more to health and less to the almighty dollar. We hear the cry of charity at all times and see the walls of charitable institutions reared through philanthropy, and by people who endeavor to do for the poor unfortunates to the best of their knowledge gained by years of experience. Yet a canvass of these institutions, including hospitals, where every care and precaution should be taken, finds them without exception buying in the open market, their chief aim being the lowest price. When it comes to a question of providential interference from a standpoint as regards our municipal meat and milk inspection, or political non-interference so long as the perquisites are right, politics seems to outtop Providence every time.

What are we going to do about it?

With a good, energetic press committee in every local organization that is in the least interested in the health and welfare of that community, the masses can be awakened to their danger and this yearly sacrifice prevented.

I wish also to speak of two branches of veterinary science that in the past have been invaded by empirics, namely, castration and veterinary dentistry. The technique of each should be placed upon a scientific basis, and we should endeavor to inculcate into the mind of the owner that it may be done to an advantage if done by one who is thoroughly conversant with the technique of his subject. But first be sure you have the matter well in hand; do not allow some empiric to run you into a corner with unanswerable questions.

We do not wish to overlook the question of milk examination. While it is not necessary for the veterinarian to be an expert chemist, this is a subject directly in line with his work, and he should be the first man consulted, and in return should be able to give some definite answer to constituents and condition. He should know what diseases are liable to be carried and disseminated through this channel, and how, as well as when and where, they would be most likely to be found.

Another matter of importance to the veterinary profession is the criticisms and ridicule, editorial and otherwise, indulged in quite frequently by our daily papers and periodicals. I feel this is a subject which should receive vigorous handling at the hands of our Press Committee, who will undoubtedly not only advocate all that is helpful to the profession, but are ready to defend it at every turn through the columns of the daily press, if the individual members will bring these matters to their attention.

I would suggest that in the near future some individual member or a committee take up the matter of new remedies or the improved combination of remedies, new or improved instruments, etc.; in fact, any new item which may be of interest to the profession individually or collectively, as we can only hope to obtain the confidential support of the public by proving to them that we are in thorough accord and sympathy with the modern march of advancement, and it is for a furtherance of this object that we to-day have the representatives of the leading drug and instrument houses of the country with us.

Our last semi-annual meeting was held at Reading under most favorable auspices and surroundings, and was undoubtedly one of the most successful and prolific semi-annual meetings within the history of the Association—due to a great extent to the untiring, unflagging interest of our worthy Secretary that this semi-annual meeting was a success, and we probably appreciated it from the fact that the first semi-annual meeting of the Association was held in that town during September, 1883.

Last September I spoke of the needs and benefits of more local associations, also the benefits of a black list as compiled by the various associations. I suggested that the county secretaries take the matter up and form local protective associations in every county, then we may have monthly or semi-monthly reports throughout the State. The compilation and dissemination of this work through our Press Committee means untold advantages to accrue to our profession. Though suggested six months ago, I fail to see that it has been taken up; at least it has not brought results with alarming rapidity. I would again press upon you the urgent need of such a movement, and the county secretaries are the men who should take it in hand; they should also keep the chairman and other members of the Press Committee posted as to all matters of veterinary interest transpiring in their vicinity, that the Association and the profession may at all times be posted and thus guarded and profit thereby. The individual member should consider it his duty to assist not only his county secretary, but his association and association officers in every way at his command. Now, I do not feel this applies particularly to your brother veterinarians, for thou art the man.

Our position to-day is due to the pioneers who took up this glorious work at a time when there was no money, much labor, no honor, apparently but slight credit at any time to accrue to the calling in the future. We may look back with pride to the work of the Micheners, the Rayners, and our late lamented friend and coworker, Rush S. Huidekoper; their work has been followed by younger men, who have been probably better equipped for the work before them by the benefits of a later-day education. Men who have imbibed the same zeal, honesty, and integrity that ever characterized the lives of those men. Among our present workers I would only mention a few, viz., Kooker, Pearson, Hoskins, who have done much in the past, and are doing yeoman service at the present time. This burden must be shared and it must be taken up by a larger number of association workers, chief among whom should be the county secretaries.

The registration of our practitioners in Pennsylvania should be thoroughly considered at this time in the formation of all new laws; there are apt to be loopholes through which there are undesirable leakages in and out. This question of registration needs

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MODES OF TUBERCULAR INFECTION IN WILD ANIMALS IN CAPTIVITY.

By W. Reid Blair, D.V.S.,
RESIDENT VETERINARIAN AND PATHOLOGIST, NEW YORK ZOOLOGICAL PARK.

In the absence of the more positive information which one acquires from a long series of experiments designed for the purpose of ascertaining the priority and manner of invasion of tuberculosis, much of this information regarding the progress of the lesions has been gathered from post-mortem examinations of natural cases. This is particularly the case in animals whose price has prevented them from figuring largely in experimental pathology.

As the existence of tuberculosis is determined by the presence of the tubercle bacillus, which produces the disease, consequently it is only since the characters of this were made known that we have been able to make an absolute diagnosis in suspected cases.

The identity of tuberculosis in human beings and that of certain animals, and the possibility of one infecting the other, renders this disease of the greatest importance.

The great difficulty in determining when the animal first becomes tuberculous makes it practically impossible to prevent the possibility of infection to its companions. Particularly is this danger greater among primates, where it is necessary to confine from six to ten, or even more, in one cage.

Animals Affected. While it is quite safe to say that hardly any animal possesses absolute immunity from tuberculosis, certain species and individuals are undoubtedly less susceptible than others.

My investigations have from necessity been confined to the animals in the primate collection, owing to the fact that with one or two exceptions the animals in the park outside the primates have been free from this disease. The experimental work along this line is not complete, but the facts already gathered are of importance.

The examinations were conducted as follows: As soon after death as possible the animal was opened; the trachea from larynx to bifurcation was ligatured at each end and removed. Smears and scrapings were then taken, under sterile conditions, from mucous membrane, five to six slides used in each instance. A

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Primary Infection by Inhalatio
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in the great majority of cases by way of the respiratory tract. It seems to me probable that tubercle bacilli enter the lungs and pass to communicating glands without giving rise to preliminary lesions of the organ with which they first come in contact.

Of the smears taken from different parts of the larynx and trachea where pulmonary tuberculosis existed in over 90 per cent. of the cases, tubercle bacilli were found in all parts of the tube.

In a small number of cases tubercle bacilli could not be found in the trachea, though the lungs showed far-advanced tuberculosis, the tubercles showing calcareous degeneration. In one instance (that of a small macaque monkey) one lung was totally functionless, appearing as a large, calcareous mass attached firmly to the costal pleura; the other being only moderately affected. Yet the animal was apparently well nourished, as evidenced by the amount of flesh and fat present. In this case I was unable to demonstrate the bacillus in the trachea.

An interesting case was that of a spotted lemur which was slightly injured, necessitating its isolation, temporarily, in the hospital room. This animal presented a fairly healthy appearance (excepting for the injury), with no clinical symptoms whatever which led me to have the slightest suspicion that the animal was tuberculous. Six smears were taken from throat and nostrils, all of which showed tubercle bacilli in abundance, those of the throat being particularly numerous. This animal was never again put on exhibition, and I did not have to wait long to confirm my diagnosis, as the animal died within a few days. The autopsy showed far-advanced pulmonary, pleural, and pericardial tuberculosis. No lesions were present in other organs.

Infection by Ingestion. While one must take into consideration the possibility of primary invasion taking place by the intestinal canal through the bacilli taken in with food or contaminated drinking-water, this, in my opinion, is not the common source of infection, but that intestines and abdominal organs are usually infected secondarily, through the breaking down of tubercular deposits in the lungs, finding their way into the bronchial tubes, finally reaching the throat, the animal swallowing secretion containing the bacilli in great numbers, some of which would doubtless escape the action of the gastric juices, pass on to the intestines, and, if in sufficient number, produce tubercular enteritis, or they might pass to mesenteric glands without producing any lesions whatever in the intestines.

Experimental evidence apparently shows that a relatively large number of bacilli are necessary to experimentally infect healthy animals by ingestion. Probably if the mucous membrane be not intact a smaller number of the bacilli would suffice.

The rarity or total absence of tubercular lesions in the stomach would indicate that the gastric juices possess power to prevent the growth of the bacilli.

Specimen smears were taken from the œsophagus at the middle and lower third. Although I have made numerous smears, I have in only a few instances found the bacilli to be in great numbers, and in a large percentage of cases none was present.

The method used in staining was that of Gabbett. After spreading the material in the finest possible film upon the glass slide, a fluid composed of 100 grammes of a 5 per cent. aqueous solution of carbolic acid and 10 grammes of absolute alcohol in which 1 gramme of carbol-fuchsin had been dissolved. A few drops of this solution was poured over the film side of the slide and heated for two minutes, or until steam arose from the stain. It was then placed for about one minute in a mixture of 100 grammes of a 2 per cent. solution of sulphuric acid in which 2 grammes of methylene-blue had been dissolved. It was next rinsed in alcohol and mounted in Canada balsam ; microscopic examination with a 1/12 oil-immersion lens used.

By this convenient method the bacilli appear red or pink and the surrounding tissue blue or greenish in color.

The fact that we are not at the present time seriously affected with tuberculosis is no reason why we should not take every possible precaution to prevent and to repress its further advance.

ACUTE PLEURISY IN HORSES.[1]

By Prof A. H. Baker,
CHICAGO, ILL.

Inflammation of the pleural membrane is very common in this climate. Most of the cases are sporadic, but a few of them are specific, being the localization of the specific fever of influenza. Sporadic pleurisy occurs as the original lesion and is uncomplicated in a majority of cases; but in many others it is seen in connection with pneumonia or rheumatic fever; then it exists oftentimes concomitantly with pericarditis. When uncomplicated it may take any degree of severity from a mild, circumscribed attack, being confined perhaps to a patch not more than two inches in diameter, to the involvement of the whole of the pleural surface. It may be right or left lateral or double. It may originate in either the costal or pulmonary pleura and extend to the other; but in most uncomplicated cases it probably arises in the costal, and the pulmonary becomes involved secondarily; but when occurring with pneumonia it probably arises in the pulmonary from extension to it from the parenchymatous tissue.

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[1] Read before the Illinois State Veterinary Medical Association, at Chicago, December 2d, 1902.

Etiology. In all probability there exists an inappreciable predisposing constitutional condition that directs the localization of the disturbance in the pleura; but the appreciable etiological conditions may be divided into idiopathic, traumatic, diathetic, and infective, and many cases occur deuteropathically.

The idiopathic cases arise usually from exposure to cold and dampness, especially when the temperature is suddenly lowered. In this connection it must be remembered that fatigue and exhaustion from hard work act as a predisposing cause, for a fresh horse, in most cases, would withstand the same exposure with impunity. The traumatic cases are due to direct injuries to the pleura by foreign bodies puncturing the chest wall; broken ribs lacerate or chafe it, and septic infection aggravates it. The diathetic causes are those which produce it by the localization of a predisposing constitutional condition, such as rheumatic fever and old age. The infective cases are those caused by specific disease, as influenza, irregular strangles. The deuteropathic cases include all of those that occur from extension of the inflammation from adjacent or contiguous tissues to the pleura, such as pleuro-pneumonia, in which the pneumonia is the original lesion and the pleurisy is secondary by extension.

Special Pathology. We divide the course of the disease into four stages, viz., first, congestion; second, dry inflammation or friction stage; third, stage of effusion, which we will divide into two parts; and, fourth, the stage of absorption. In the first stage the pleura becomes red in streaks or patches; these become confluent by extension in the course of an hour or two, when the pleuræ show a diffused redness. This stage runs rapidly into the second, when the pleuræ become dry by suspension of function and the friction sound is heard by auscultation. This stage is also short, being only about six hours in length, when it runs into the first part of the third, or exudative stage. At this time a plastic exudation occurs on the surface of the membrane, coagulates, and in some cases becomes adherent to its neighbor. In many cases the inflammation subsides at this time; the soft membrane softens through fatty degeneration, liquefies, and is absorbed; but if not, it runs into the second part, or stage of effusion, and large quantities of serum are poured out, more or less filling the pleural cavity, constituting what is known as hydrothorax. In cases that recover, the fourth stage follows and absorption of the effusion takes place slowly. The third stage is indefinite in length according to the severity and extent of the inflammation, but in a fair average case it is about eight or ten days. In this stage suppuration may take place and pus is mixed with the serum, known as empyema. All fatalities occur in this stage, either from asphyxia by the lungs being floated up to the back and interference with the action of the heart, or from general debility, prostration, and collapse from the absorption of the pus of the empyema. The fourth stage is long and tedious, requiring from four to eight weeks for absorption to take place to enable him to go to work.

Symptoms. It is often preceded by a rigor, and before it is fairly over sharp lancinating pains with rolling and sweating are manifested, resembling spasmodic colic; but if the pulse and temperature are taken they will be found to be accelerated, with a tinge of hardness and elevated to 104° or 105° F., which will distinguish it from colic, in which there are no disturbances of the pulse and temperature. As it runs into the second stage, the patient gets quiet, persistently stands with elbows turned out, abdominal muscles drawn tightly, producing the pleuritic line from the elbow along the cartilages of the ribs to the point of the hip. The breathing is careful and shallow and not labored, but is very painful, in which a grunt is emitted with nearly every expiration, and the grunt is particularly prominent if he is forced to move, especially if he is turned around shortly. A grunt in acute disease is always indicative of pleurisy. By auscultation a distinct friction sound is heard, and percussion causes pain, especially if the fingers are pushed into the intercostal spaces. The pulse runs about 60 and is small and hard; the temperature runs at about 105° F. The appetite is lost and the excretions are diminished in quantity and altered in character. The third stage is marked by more or less hydrothorax and dyspnœa in proportion to the amount of effusion. In a fatal case the nostrils are dilated, the flanks heave, the back is roached with each inspiration, the expired air is cold, the mucous membranes become livid, emaciation has been rapid and debility great; he gets cold, sweat in patches more or less as death approaches. The diagnostic evidences of hydrothorax are dulness under percussion, absence of all sound by auscultation below the water line, and an increased respiratory sound above it. If the hydrothorax exists a week or longer the lower part of the chest becomes œdematous, especially between the forelegs, and the temperature persists at about 104° F.

Treatment. If seen in the first or second stage heroic treatment should be given, such as aconite, belladonna, spirits of nitrous ether, nitrate of potash, and acetanilid in liberal doses and repeated often for twenty-four to forty-eight hours, and apply smart counter-irritations over the sides of the chest, and repeat every twelve hours. After two days drop out the aconite and add nux vomica; if it runs on to hydrothorax to a greater extent than one-third full of the chest, paracentesis thoracis is indicated. After the operation give iron and alcohol for two to four weeks, and nourishing diet. If empyema develops, as proven by the purulent character of the discharge from the canula at the time of the operation, rinse out the chest with a one-fifth of 1 per cent. solution of permanganate of potash to flush out the pus, then rinse again with a 1 per cent. aqueous solution of tincture of iodine.

INTESTINAL ANTISEPSIS.[1]

By Dr. J. H. Crawford,
HARVARD, ILL.

A MORE appropriate name might have been chosen, but, as Shakespeare says, "What is in a name?" Therefore, in introducing the subject, we will consider it in three different phases: (1) Why we should use them. (2) What we expect to accomplish by their use. (3) Which of the numerous antiseptic agents can we safely use with a fair prospect of obtaining results?

Chemical investigation has shown that many diseases depend upon the products of putrefaction and fermentation, rather than upon the direct action of microbes upon the tissues. These products are called ptomaines, which resemble vegetable alkaloids. These alkaloids, however, are not all poisonous; the poisonous ones are termed toxins. And it is those with which we have to deal. As toxins owe their development to the micro-organisms, it follows that toxins formed depend on the material acted upon, the conditions under which the putrefaction goes on, and probably the health of the animal in whose body these processes are taking place. Some bacteria require oxygen, others do not; consequently the toxins manufactured by those two classes of organisms differ very materially. Metabolism is taking place everywhere within the body, with the result that the complex molecules of brain and muscle in their catalysis pass through intermediate stages, and are finally resolved into carbonic acid, water, and ammonia. We do not know what part oxygen plays in the processes of putrefaction; but the researches of Pasteur have shown that bacteria play a very important part in the disintegrating processes of organic matter, and in no part of the body is this more true than in the intestines.

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[1] Read before the Illinois State Veterinary Medical Association. December 2, 1902.

Self-poisoning from the absorption of toxic substances secreted in the intestines is only prevented by the activity of the excretory organs of the body, chiefly the kidneys and liver, the liver acting the part of a sentinel to the material brought by the portal vein from the alimentary canal.

Therefore, when we consider the amount of toxic materials in the alimentary tract of a diseased animal, when suffering from any of the infectious or contagious diseases or any of the various digestive troubles, particularly where there is considerable fermentation going on, also in diarrhœas, parturient paresis, rheumatism, laminitis, and other diseases too numerous to mention, it can be readily seen that the use of intestinal antiseptics in such cases are not only necessary, but imperative.

We will pass on to the second consideration—that is, what we expect to accomplish by the exhibition of antiseptics in the alimentary tract.

Undoubtedly the first indication is to get rid of the material which gives rise to the putrefactive and fermentative processes. This is most readily accomplished by inducing catharsis. Unfortunately, this is not always a safe procedure in the horse. The next best thing is to come as near that point as possible, by dieting and by the use of the proper laxative remedies, such as the condition indicates. On the other hand, free catharsis may be induced by eserine, arecoline, barium, aloes, aloin, oils, etc. Having cleared out the alimentary tract, our antiseptics are now in order. Having selected our remedies according to the conditions present, by their use we expect to prevent, as far as possible, the formation of various toxins and gases; in other words, to get the alimentary tract in as aseptic a condition as we can, and keep it so. Of course, we understand that it is absolutely impossible to get the digestive tract in a purely aseptic condition, but there is no doubt that a great deal can be accomplished by the administration of antiseptic remedies, and, in so doing, we will undoubtedly modify to a large extent the pathological processes induced by the absorption of toxins into the system.

We now come to the point where we have to select remedies, and in our selection we must be careful to administer only drugs that are reliable, and in doses that are not in themselves poisonous; for in killing the microbes we must not destroy the patient. At the same time, we know that the best way to disinfect the stomach and intestines is to restore them to their normal condition. Among the large numbers of antiseptic agents at our disposal are the various members of the coal-tar group, such as carbolic acid, creolin, salol, creosote, naphthalin, and beta-naphthol. There are also bismuth salicylate, salicylic acid, iodoform, boric acid, quinine, charcoal, and there are also the various mercurial salts, which are all antiseptic and also more or less poisonous.

However, we may combine several of these agents, and out of them get a fairly reliable and safe antiseptic remedy. Of late I have used a remedy composed after the following formula:

Carbolic acid		℥iij.
Boric acid		℥iv.
Oil of gaultheria		℥j.
F. E. capsicum		℥iss.
Glycerin		℥viij.
Alcohol		Oiij.
Aqua	q. s.	Ov.

This is given in doses of from one to two ounces and can be repeated as necessity requires. The above formula is open to criticism, no doubt. It may be called conglomerate, shot-gun, or anything else. It may also be said that as good or better results can be obtained by one single drug. That may be so in any one disease by selecting the drug best suited to that disease; but for a good general intestinal antiseptic the above has proven successful in my practice, and a careful summing up of the various actions of the drugs used will substantiate that proposition. Expense is also a very important point on account of the large doses used. On that point it fills the bill admirably. It can be used in colics, the pneumonias, and, in fact, in all febrile or digestive troubles, as a general intestinal antiseptic.

In conclusion, I would say th
paper I hope to bring out a good,
all profit by, and that it may sti
intestinal antiseptics more thougl
ideas that may redound to the be
veterinary practitioners in general.

SCLEROSTOMA TE

By Dr. N. I.
WATSEK

In presenting this subject for y
with the thought of adding anytl
or anatomy of this parasite.

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Dr. J. F. Winchester, in 189
before the United States Veterir
the armed sclerotome (*Strongylus*
anything about the tetracanthus.
may be read by referring to page
United States Veterinary Medical
359, *American Veterinary Review,*

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[1] Read at Chicago before the Illinois St

In the January, 1893, number of the *American Veterinary Review* is published a paper read before the Iowa State Veterinary Medical Association by Dr. G. L. Buffington upon the subject of this paper.

The description and round of life is given by Dr. Buffington as follows: "The *Sclerostoma tetracanthum* is one of the very small nematodes inhabiting the intestines of the horse. The body is slightly tapering anteriorly, of a reddish-brown color when preserved in alcohol, but while in the intestinal canal of the host the larger ones are of a bright red and the smaller ones a dirty white color. They are from one-fourth to three-fourths of an inch long, the females being a little larger than the males. The mouth is circular, with a salient rim that has a crown of triangular teeth, and outwardly six papillæ, two lateral, small, and on each side of them two others, conical and very prominent. The buccal capsule cylindrical. The caudal pouch of the male is simply excised on the ventral surface. The posterior lines are trifurcated, the middle doubled, and the anterior cleft. In the female the tail terminates in a point, and the vulva is very near the anus. The digestive canal is complete. The ova are segmented in the uterus. They are laid in the intestine of the host, passed out with the feces, and if the proper conditions, warmth and moisture, are met with will hatch out in a few days. The external phases in their development are, according to Bailliet, analogous to those of the *Strongylus armatus*, and are about as follows: If after the ova are hatched out they gradually grow, their integument becomes folded and forms a kind of sheath in which the worm moults. It is at this period they enter the body of the host in the water the animal drinks, or, perhaps, on the green forage when on low, damp ground, pass into the intestines, and it is probable that they encyst themselves directly into the mucous membrane of the colon and cæcum without penetrating the circulatory apparatus. At least, no wandering parasites of this kind have ever been observed. They remain embedded beneath the mucous membrane until they attain sexual maturity, when they again enter the intestinal canal to pass the remainder of their lives."

I think the above quotation from Dr. Buffington gives about all that is known of the life-history of these parasites.

About 1891 or 1892 I had my first experience with the *Sclerostoma tetracanthum*. A Mr. M., living near Fairbury, Illinois, where I was practising at that time, called me to see two yearling colts that were acting very strangely, and, as he thought, were starving, as he had just brought them home from a hired pasture. I think it was some time in June or July. They seemed to be very weak and could hardly walk, and could only arise with much difficulty when down. They were somewhat emaciated. One died in a few hours after I saw them, and the other died a day or two after the first one. I was somewhat puzzled, but I always take the opportunity to hold a post-mortem whenever a case terminates "fatally," especially those of a peculiar nature. The large colon and cæcum contained uncountable numbers of the parasites, they were found adhering loosely to the mucous membrane. That same season I saw in that vicinity six or eight cases ranging from yearlings to five-year-olds. The animal usually dies in from a few hours to three or four days after they show signs of the trouble.

The usual symptoms first noticed are a weak, staggering gait and haggard expression. When forced to walk it seems to completely exhaust them. They usually quit eating; in some cases that I have seen they would attempt to eat and drink, but could not swallow either food or water, there seeming to be a paralysis of the entire alimentary tract. Occasionally one will go down shortly after showing symptoms, and become delirious; struggling and frothing at the mouth, I think, is due to the inability to swallow the saliva. Those of the weak, trembling, staggering gait will show pallor or blueness of the visible membranes. Those that are struggling and delirious may show a livid color of the membranes. Feces in most cases scant, urine of a very high color, usually of a very dark red, and in some cases almost black.

Post-mortem. Tissues almost bloodless; when large blood-vessels are severed blood flows like water, is very dark, almost black in color; it seems to be entirely defibrinated, no coagulum exists anywhere. Bowels very pale in color, in some cases small hemorrhagic spots may be seen dotted over the peritoneal surface of the large colon and cæcum; apex of cæcum may be considerably congested and gangrenous. In two or three cases I have seen perforations of the bowel, allowing the fluids to escape into the peritoneal cavity, causing peritonitis, the animals showing symptoms of a severe colic before death.

I will cite a few cases that I have had to deal with:

August 23, 1899, about sundown, I was called to Mr. B.'s, near Eureka, Illinois. On my arrival I found a mare lying on the ground on her side, spasmodic paroxysms of struggling, and pawing with forefeet, hind-limbs motionless, these paroxysms taking place every few minutes. She would pay no attention to the stroke of the whip or being spoken to. Temperature, 101° F.; respiration, 30 ; pulse, 60. She died next day, 24th, about noon. On the same evening when called, 23d, a horse, four years old, was lying down in the barn. I gave him a stimulant; he got up in about an hour. We then got him out of the barn ; before morning he also went down, and could not get up ; soon became delirious, and grew worse very fast. We killed him the next afternoon.

On the same evening (23d) found two mares, staggering gait, walked with much difficulty, unable to swallow anything. I gave each a capsule of aloin, but do not think it reached the stomachs. One of the mares died on the night of the 25th, and the other about five days later; her exit was hastened by the administration of a lot of concoctions during my absence by the owner and an old moss-backed empiric. On account of the animal not being able to swallow, the dope naturally found its way into the lungs, producing inhalation pneumonia.

The empiric's diagnosis of the trouble was "pizen" (poison); the owner contended that it was witches that was doing the mischief. You may imagine how I enjoyed the situation ; the owner would not believe my diagnosis, neither would he discharge me, but insisted upon my staying on the field. In the first three cases upon post-mortem the mucous membranes of the large colon and cæcum were covered with the *Sclerostoma tetracanthum*. In the last case, owing to the decomposed condition of the animal, they seemed to have been destroyed. The lungs were gangrenous.

There were six horses in the barn, and they seemed to be feeling well except one, that was showing slight symptoms of trouble. I gave all six ol. lini. and spirits terebinth., followed in thirty-six hours with aloin ; also ferri sulphide and nux, twice a day.

On the morning of September 1 the horse that was not feeling well went down and could not get up. He was a driving horse, five years old. I raised him with a sling, by the aid of which he was able to stand, drank water, and ate some food, being able to swallow, which none of the other affected ones could do. Before slinging him up he was pawing and showing similar symptoms to the others, but not so severe. They let him out of the sling in three or four days, when he went down, and the same symptoms returned. They again raised him, when he seemed to be all right. He got out of the sling twice after that during the next two weeks, when the same symptoms would return. In six weeks he was turned to pasture and showed no more signs of the trouble. The funny part of the programme was that just before the horse was turned to pasture the owner consulted two lady clairvoyants in Peoria, who agreed with him that all his trouble was caused by a certain man, who was his enemy, working under the power of the witches, and for a certain consideration they could break his charm. The owner accepted their proposition, went home, and took the horse out of the sling and let him go. But I cannot help but give the credit to the sling and the nux and iron.

One very peculiar thing about the effects of these parasites upon some animals is, where the symptoms develop slowly and the animal will partake of food and water, if they are kept on their feet by the aid of a sling and treated with vermifuges and tonics a good many of them will recover.

Six years ago I saw some cases near Fairbury, with Dr. Presler, for Mr. Pense, seven dying out of the twenty head of young horses in that pasture. Dr. Presler reports that last summer a year ago in that same neighborhood one man lost thirteen head of young horses. A year ago last September, in Dr. Presler's absence, I was called to the same locality to see some work horses that were affected with the tetracanthus. The man lost three out of the four that he owned.

In September, 1900, a Mr. G., near Milford, Illinois, lost five out of six head of horses, ranging from five to fifteen years old. Two of these were mares with colts by their sides. One mare lived about eight days after she began to show symptoms of the trouble. Part of the pasture that these were in was a woods pasture that had recently been used for hogs, and there were a good many hog wallows filled with water.

This year I have seen four cases. One yearling, near Woodland; post-mortem showed cæcum and large colon filled with feces, mucous membrane and feces covered with tetracanthus, apex of cæcum much congested and about a pint of the long white worm (*lumbricoides*) packed in it.

I was called to Cissna Park to see one case, a very large suckling colt, five months old; it died a half-hour before my arrival; held post-mortem; conditions same as above cases, except there was no congestion of apex of cæcum or lumbricoides present at that point.

On the fourth of last month (November) I was called six miles east of Watseka to see a yearling colt that was staggering about, showing the same symptoms as its mate, so the owner told me, hope of receiving aid in the proper classification of this disease rather than to advance any new theory to the profession that I have suggested this subject.

I have been able to find but little in the professional literature which at all fits the case, and this naturally has caused me to wonder why? Within the past ten years, perhaps, I have seen but three or four seasons when any such symptoms have been found, and these outbreaks seemed to vary from being quite general at one time while at another only a few cases would be seen or heard of. The first outbreak which came under my notice was the most general and consequently caused the greatest loss. I have not the data at hand to be exact, but this was about ten years ago. In the late summer and early fall seasons fully half of the cattle over quite an extended area of country contracted the disease, which was characterized by a fever ranging from 103° to 105½° in the early stages and which continued for a period of from three or four days to a week. An accompanying soreness with weakness and perhaps a stupid or a humped-up appearance were usually present. Such animals eat but little or none at all when first noticed, and usually look gaunt when the owner or attendant's attention is first attracted. The dental or incisor pad becomes extremely sensitive as a usual thing, and in appearance is of a very dark or purple color, and apparently almost gangrenous and perhaps covered with a slimy-like coating. I have, on a few occasions, seen vesicles form about the mucous membrane of the lips and gums, but at the stage where I have usually seen them I cannot say that the formation of distinct vesicles is a prominent symptom. Saliva dribbles from the mouth and collects on the lips. Salivation is so extensive often as to form a pool on the ground or floor. The mouth is held tightly shut except that at short intervals the lips or jaws separate very slightly and cause a peculiar but almost diagnostic sucking or smacking noise. In a few aggravated cases I have found the tongue and even the cheeks affected and swollen, but in the great majority of cases the dental pad only. The affection sometimes extends also to the mucous membrane and surrounding tissues about the incisors, but only in a limited number of subjects. The eyes are dull and watery. Saliva is thick and stringy.

Usually we can notice at least some soreness and stiffness in the animal's movements, and often there is marked soreness on pressure about the coronet, and sometimes for several inches up from the foot the cutaneous structures are hot, sore, and swollen. In this first outbreak which came under my notice I saw numerous cases where vesicles formed in this region and several cases where the interdigital becomes weak. Also, if a milch cow, the secretions of milk grow markedly less or cease almost entirely, according to the severity of the case.

I have no special treatment to offer in the way of medication. If possible to do so, I advise removing the cattle for a time from the pasture where infection seems to be, and keeping the affected ones off in a dry lot or barn. Usually I administer Epsom salts to open up the bowels freely, and often prescribe nitrate of potassium two or three times a day for a few days. I use a borax or alum wash for the mouth, to cool and soothe the mucous membrane, and white lotion to the digits. But I consider fully as important, if not the most important feature, is to attend to getting a little food down the animal to keep up strength and prevent as far as may be the extreme loss of flesh. Usually the incisor pad is so sore that the animal cannot even pick up a nubbin of corn when placed before it, and even ground feed or a mash is so irritating when first coming in contact with the diseased mucous membrane as to make the poor brute give up trying. Indeed, she will resist forcing the mouth open at first, but if drenched with gruel, or, what I have found equally as good, take a nubbin of corn, for instance, and place it far back in her mouth, and with the first or second attempt she will learn that she can eat without much pain. In the same way corn blades, cut-grass, etc., may be inserted well back between the molars, and she will usually eat it with a relish.

The recent outbreak of eczema contagiosa in the New England States and the bulletins sent out by the Bureau of Animal Industry under the direction of Dr. Salmon have suggested the similarity of the published clinical symptoms and those of the kind described in the foregoing cases. In each the mouth and feet seem to be the usual seat of attack. In each, one or more of the prominent symptoms may be found without the others being present. The loss is identical in each so far as it goes, *i. e.*, in loss of flesh and loss of milk. A few points, at least, seem to establish the fact that the origin is entirely dissimilar—one is very contagious and attacks various kinds of animals, while I have never seen or heard of a case of the disease in question in anything but the bovine species unless it be slight traces of infection in man in one or two instances. It seems to only become prevalent by exposure to the same cause, which is not contagium, but apparently due to a vegetable fungus. Might not this disease, therefore, be easily confused with the eczema contagiosa and be the cause possibly of the difference of opinion among our older authorities and be the real basis for the opinion merely referred to by

Williams, and previously quoted, but to which he gives no credence. If both diseases were to occur simultaneously, differentiation would be difficult. The occurrence in so many comparatively isolated cases of this symptomatic foot-and-mouth disease strengthens the idea that it is caused by taking into the mouth or stomach some fungus developed through some peculiar climatic and atmospheric conditions and producing an aphthous condition. It is not uncommon for one or a very few cases to be fully developed and no more appear, while often but few, if any, will escape entirely. I have never seen it occur after heavy frosts come, nor in the early spring.

GASTRO-INTESTINAL CATARRH OF THE OX.[1]

By Dr. F. H. Barr,
Pana, Ill.

This is a disease with which we are more or less familiar, especially those of us who have to do with practice among dairy cattle. It is not my purpose to shed any new light on this trouble, but rather to give a description of the disease as I have found it, in a hope that I may succeed in bringing out a liberal discussion on the subject which to the rural practitioner is of great importance.

First, we will consider the etiology.

All animals are not equally predisposed to gastro-intestinal catarrh or digestive troubles of any kind. This predisposition varies according to the degree of activity of the digestive function, the constitution and temperament, pre-existing disease, age, etc.

In ruminants diseases of the stomach are more common than of the intestines. The rumen and omasum, first and third stomachs, are the gastric compartments most frequently affected.

The principal cause predisposing animals to disease is a continued feeding of poor, insipid food and slops, such as mouldy hay or rotten corn, and sour, fermented swill, or a diet composed entirely of liquids to the exclusion of all other, and we might add that poor stabling in narrow stalls, as I have frequently found it, where but one or two cows are kept in a little cramped-up shed, and fed on all manner of refuse.

We always find that the trouble is more common in the seasons of spring and fall.

The causes that develop it are, 1st, overloading the rumen ; 2d,

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[1] Read before the Illinois State Veterinary Medical Association, Champaign, Illinois, February 17, 1903.

frosted or frost-covered grass or fodder,
the grass is sufficiently mature in the spr

It is likely that animals affected wi
undergo a period of indigestion or dy
masticating the food sufficiently the se
motion of the paunch, etc., but this is
does not notice that the animal's condit
Closely following this condition we have

First, in the acute form; later, if not
my observation we either have the chroni

SEMEIOLOGY. The practitioner is c
dairy cow, and the owner tells us that t
wouldn't eat much, stood in the stall
that at the last milking she didn't give
that she is very loose, instead of being c
be, and upon our arrival we find that fac
to tell us that owing to the fact that she
given her a greasy dish-rag, a pound of
soot, and neither had enabled her to find
her two pounds of Epsom salts. Well,
story short, we find an animal in an extr
festing all the symptoms of acute gastro-i
as follows:

The animal keeps away from the man
arched; the limbs drawn together; the
especially about the neck; the ears han
temperature is variable; ears and horns
the muzzle is damp in some patients; o
and the moisture is wiped off, it will be
is hot and is sometimes full of ropy saliv
or entirely gone. Regurgitations are
seldom, and in small bolus and masticati
food is again swallowed.

Sometimes we find vomiting. This, h
The distended paunch is usually visibl
cheese-like contents can be felt through
have found the stomach distended with
undergoes normal rotation as in health, t

Defecation is rare, and may be ring-
mucus. When diarrhœa is present, on
mentary material that has never undergo
mastication; the matter usually has a ver

amount of tissue, and when it is allowed to stand for a day or more it will continue the breaking-down process, but will not carry it off, as would have been the case had it been at work; consequently the system becomes overloaded with uræmic products, and the condition follows which you are all familiar with.

There is not any danger of being mistaken in the diagnosis, as the symptoms are so marked, and the history of the case will make it impossible to confound it with any other disease.

Prognosis is a point where many can differ and be honest in their opinion. I think the literature on the subject gives the mortality too great, even though you cut out the cases which are slightly affected.

Treatment has been very satisfactory with me, though the treatment is not original with me.

On being called to see a horse with azoturia I get history of case and find out whether it has had previous attacks; I notice whether the horse has any manifestations of a weak circulation or weak kidneys, the legs being swollen is a common symptom. If these symptoms are present I give careful treatment in the way of antiseptics for kidneys.

I have found nothing to use in this trouble that does so well as salol in drachm doses. It is claimed by chemists that salol given internally will be changed in the kidneys to formaldehyde, and if so it has the proper action, as it will harden the kidneys and prevent the breaking down of these organs and the fatal termination which will follow.

When called to see a case I first give a physic ball, then follow up with one-ounce doses of sodii bicarbonas, either dissolved in water or wrapped in tissue paper and given as a bolus; repeat this every fifteen minutes until the patient has dried off and become quiet; then, if horse is down and unable to rise, draw its urine, wash out bladder with boric acid sol. I leave the man sufficient amount of the bicarbonas sol. to last, and give stimulants if much depression exists, and stimulate the horse with weak circulation with spirits nitrous ether and nux vomica. This I leave with the owner to give. Usually the horse will rise the second or third day.

I could burden you with the history of many cases, but will not, as you have given me your attention, for which I thank you one and all.

Dr. L. E. Willyoung, formerly of Buffalo, N. Y., is now located at Fort Sam Houston, San Antonio, Texas, as Veterinarian to the 2d Battalion F. Artillery.

SELECTIONS.

ACTINOBACILLOSIS.[1]

By S. J. J. Harger, V.M.D.,
PHILADELPHIA, PA.

In the summer of 1900 an epizootic occurred among the cattle of the Argentine Republic, which, in its clinical aspect, resembled actinomycosis. The latter disease was known to exist there since 1887, affecting from ½ to 1 per cent. of the animals in some localities. The disease in question was investigated by Lignieres and Spitz, of the National Bacteriologic Institute of Buenos Ayres, and by them named actinobacillosis.

During this epizootic, in some localities from 40 to 50 per cent. of the animals were affected; the improved breeds more so than the native stock, and in rare cases sheep also; in one instance a calf one month old was affected.

Clinical Study. Nearly all the tissues of the body were the seat of lesions; the skin, subcutaneous tissue, lymphatic and salivary glands, pharynx, lungs, and bones. The skin of the throat and neck was most frequently affected. The subcutaneous tissue became the seat of a hard, fibrous tumor, as large as a fist and larger, which fluctuated, and, finally, the abscess broke. The orifice became surrounded with exuberant granulations, and the tumor remained in this state indefinitely; sometimes it became absorbed. These abscesses, which were usually multiple, were found at the base of the ear, the throat, upper jaw, intermaxillary space, along the mastoid humeralis muscle, ribs, flanks, sheath, and inside of the thighs. Sometimes the disease manifests itself as a subcutaneous hyperplasia between the hock and the hoof, resembling elephantiasis, and accompanied by multiple abscess and grayish fungoid ulcerations. The lymphatic glands, contrary to the lesions of actinomycosis, around the head and neck may become enlarged and suppurate primarily or from infection by the neighboring lesions. Invasion of the tongue resembles "wooden tongue" of actinomycosis; it becomes hypertrophied, studded with nodules and ulcerations, deglutition becomes impossible, and the animal dies from starvation. In the pharynx the lesions consist of polypoid tumors; in the mammary glands of chronic interstitial mammitis, with abscesses. In the lungs are found nodules of various sizes enclosing the characteristic pus; in the upper and lower jaws, hypertrophy and arealation of the bone tissue with multiple abscesses. The disease shows all the peculiarities of location of actinomycosis, and in 80 per cent. the neck is the seat of the lesion. This epizootic in the Argentine was more destructive than foot-and-mouth disease which had existed some months before. The disease was usually introduced into a herd by newly purchased animals. Of those affected, some were killed, and others were sent to the abattoirs. From 15 to 50 per cent. of a herd became affected. Such a rapid spread of the disease is not the rule, since numerous sporadic cases are found, but at a given time some undetermined influence may increase the virulence of the pathogenic agent. Contact with the diseased animal, or forage, or other objects soiled with the pus, is necessary to transmit the contagion.

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[1] Read before the Pennsylvania State Veterinary Medical Association's Annual Meeting, March 3 and 4, 1903.

Bacteriology. The pus from the abscess is milky-white or slightly grayish in tint, thick, viscid, odorless, and contains numerous small grumous masses, the latter varying in size from a pin-point to a pin-head, reveals under the microscope one or more tufts with numerous club-shaped elements somewhat simulating the ray fungus of actinomycosis. It is differentiated from the latter by *not taking the stain of Gram.* Save in the abscess on the jaws, the pus does not contain the yellow granules seen in lump-jaw pus.

Pus drawn from a closed aperture rarely gives any culture upon ordinary media unless it is first ground in a sterilized mortar. In twenty-four hours, at 37° C., numerous small, bluish, translucid colonies will grow upon gelose, which is the best culture medium. Bouillon, milk, and blood serum of the horse may also be used. Potato will not grow colonies unless it is first rendered alkaline.

The specific agent of the cultures, the actinobacillis, not much larger than the bacillus of chicken cholera, measures $\frac{1}{25} \times 4\ \mu$. It contains and forms no spores. The first cultures are purely bacillary; during successive inoculations they assume the form of a coccobacillus, a diplococcus; or, in bouillon serum, a strepto-bacillus. It stains readily with aniline, phenicated, fuchsin, and acid violet, but not with the method of Gram.

This bacillus possesses very little resistance to physical and antiseptic agents and to desiccation, and loses its virulence in about two months. The cultures contain a toxin, actinobacillin, demonstrated by inoculating ruminants and other animals with a glycerin extract. It causes febrile reaction, 1 to 2½ per cent., trembling, suspension may be treated or slaughtered. The meat, where the diseased parts are removed, can be used for consumption, and this may be the more economic course.

Iodide of potassium, it is said, is an excellent specific, and under its prolonged treatment the lesions gradually disappear, except when the bones are affected 10 to 12 grammes are given daily, or 1 c.c. of a 10 per cent. solution, and 1 c.c. of Lugol's solution are injected at different points into the thickness of the tumor. Abscesses should be opened and curetted, but this operation alone is not sufficient, and is only a useful adjuvant to the iodide of potash.

This disease is recidivant, a first attack not conferring immunity. Bovines that have recovered from or carry lesions of the disease are even more sensitive to pure cultures than those never affected. A vaccine is, therefore, out of the question. A serum obtained from a mare inoculated with large doses of pure cultures has clearly shown itself to be preventive in guinea-pigs inoculated with fatal doses. This requires further research.

The disease has certain points of analogy with actinomycosis. The seat and the macroscopic characters of the lesion, its therapeutic reaction to iodide of potash and the club-tufts found in the pus. The points of difference are: The pus does not contain yellow granulations; the tufts do not take the stain of Gram. A specific bacillus has been found, and the disease appears to be more contagious. Without accepting conclusions prematurely, it appears that the work was done by men of the highest standing in the bacteriologic world. Nocard has identified the disease in Europe. If it exists in this country, it no doubt has been confounded with actinomycosis, and to make observations is interesting. Since no cattle are imported from South America into this country, there is no danger of contagion from that source.

NOTES ON ARAB HORSES.[1]

Contributed by the Rev. FRANKLIN E. HOSKINS,
BEIROUT, SYRIA.

THERE are three breeds of horses in Syria: the true Arab breed, the Turkman, and the Kourdy, which is a mixture of the two former. The Arab horses are mostly small, in height seldom exceeding fourteen hands; but are ill formed and they all have certain characteristic beauties, which distinguish their breed from any other. The

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[1] From Burckhardt's Bedouins and Wahabys, printed in 1831.

The Arabs almost exclusively ride thei
to towns-people or farmers. While the
ranges from $40 to $500, the mares wil
those amounts. Then the Arabs seldom
a mare. If he sells half, the buyer take
let the seller have the mare's next filly,
and keep the filly to himself. If the A
his mare, the purchaser takes her home,
the fillies of two years, or else one of
fillies of the third year, and all subseque
well as the male colts, whether produced
year. This contract the Arabs call "sel
the mare's belly," and thus it happens th
are the joint property of two or three pe
if the price of the mare be very high.

Immediately after the birth of a c
together over its head with a thread, th
pointing direction; at the same time the
upwards, and take other measures where
The only care taken of the dam after sh
to wrap a piece of cloth or linen rou
removed on the next day. If the mar
by an Arab, he is obliged, on the ninth d
filly, to assemble some witnesses, and
intention of giving the newborn filly to
keep the filly and to return the mare to
once made this declaration, he is bound
remain with the mother thirty days, aft
wean them, and then either give them t
rear them themselves on camels' milk.
after the colts have been weaned, it is no
other food than camels' milk; even wa
that time the colt receives a daily port
water: at first only a handful; this qua
but milk still continues to be the colt's
colt's diet for 100 days more, during the
to feed upon the grass near the tents an
period of 100 days having elapsed, barl
if camels' milk be abundant in the ow
given every evening along with the allow

It is well known that the Arabs are n
stallion as the European breeders; for th

Bedouins count five noble breeds of horses, descended, as they say, from the five favorite mares of their prophet: Taueyse, Manakeye, Koheyl, Saklawye and Djulfe. These five principal races diverge into infinite ramifications. Every mare particularly swift and handsome, belonging to any of the five principal races, may give origin to a new breed, the descendants of which are called after her; so that the names of different Arab breeds in the desert are innumerable. On the birth of a colt of noble breed, it is usual to assemble some witnesses, and to write an account of the colt's distinctive marks, with the name of its sire and dam. These genealogical tables never ascend to the grandam, because it is understood that every Arab of the tribe knows by tradition the purity of the whole breed. Nor is it always necessary to have such genealogical certificates, for many horses and mares are of such illustrious descent that thousands might attest the purity of their blood.

The pedigree is often put into a small piece of leather, covered with waxed cloth and hung round the horse's neck. The following may serve as a specimen:

"GOD ENOCH. In the name of the most merciful God, the Lord of all creatures; peace and prayers be with our Lord Muhammad, and his family, and his followers, until the day of judgment; and peace be with all those who read this writing, and understand its meaning. The present deed relates to the greyish-brown colt, with four white feet, and a white mark on the forehead, of the true breed of Saklawye, called Obeyan, whose skin is as bright and unsullied as milk, resembling those horses of which the prophet said: 'True riches are a noble and fierce breed of horses;' and of which God said: 'The war horses, those which rushed on the enemy with full-blowing nostrils; those which plunge into battle early in the morning.' And God spoke the truth in his incomparable book. This Saklawye colt was bought by Khoshrun, the son of Emheyt, of the tribe of Zebaa, an Anezeh Arab. The sire of this colt is the excellent bay horse called Merjan, of the breed of the Koheylan: its dam is the famous white Saklawye mare, known by the name of Jeroua. According to what we have seen, we attest here upon our hopes of felicity, and upon our girdles, O sheikhs of wisdom, and possessors of horses, that this grey colt above mentioned is more noble even than his sire and dam. And this we attest according to our best knowledge, by this valid and perfect deed. Thanks be to God, the Lord of all creatures!

"Written on the 16th of Safar, in the year 1223,

"Witnesses, etc."

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The Arabs almost exclusively ride their mares and sell the horses to towns-people or farmers. While the price of a horse in Syria ranges from $40 to $500, the mares will average at least six times those amounts. Then the Arabs seldom consent to sell the whole of a mare. If he sells half, the buyer takes the mare, but is obliged to let the seller have the mare's next filly, or else to return the mare and keep the filly to himself. If the Arab has sold but one-third of his mare, the purchaser takes her home, but must give to the seller the fillies of two years, or else one of them and the mare. The fillies of the third year, and all subsequent, belong to the buyer as well as the male colts, whether produced in the first or any following year. This contract the Arabs call "selling one-half or one-third of the mare's belly," and thus it happens that most of the Arab mares are the joint property of two or three persons, or even half a dozen if the price of the mare be very high.

Immediately after the birth of a colt the Arabs tie its ears together over its head with a thread, that they may assume a fine pointing direction; at the same time they press the tail of the colt upwards, and take other measures whereby it may be carried high. The only care taken of the dam after she has produced her colt is to wrap a piece of cloth or linen round her body; this cloth is removed on the next day. If the mare is only partially possessed by an Arab, he is obliged, on the ninth day after she has produced a filly, to assemble some witnesses, and to declare before them his intention of giving the newborn filly to the seller of the mare, or to keep the filly and to return the mare to her former owner. Having once made this declaration, he is bound to abide by it. The colts remain with the mother thirty days, after which the Arabs always wean them, and then either give them to the seller of the mare or rear them themselves on camels' milk. For the space of 100 days after the colts have been weaned, it is not permitted to give them any other food than camels' milk; even water is not allowed. After that time the colt receives a daily portion of wheat diluted with water: at first only a handful; this quantity is gradually increased, but milk still continues to be the colt's principal food. Such is the colt's diet for 100 days more, during the latter of which he is allowed to feed upon the grass near the tents and drink water. The second period of 100 days having elapsed, barley is given to the colt; and if camels' milk be abundant in the owner's tent, a bucket of it is given every evening along with the allowance of barley.

It is well known that the Arabs are not so nice in the choice of a stallion as the European breeders; for they ascribe the good qualities of the colt to the dam rather than to the sire. I have heard, however, of Arabs who took their mares a journey of several days that they might breed by some celebrated horse; the price paid on such an occasion is usually one dollar or a sheep. The Arabs keep their horses in the open air all the year round; they never clean or rub them, but are careful in walking them gently whenever they return from a ride. From the time that a colt is first mounted (which is after its second year) the saddle is but seldom taken off its back; in winter time a sackcloth is thrown over the saddle; in summer the horse stands exposed to the midday sun.

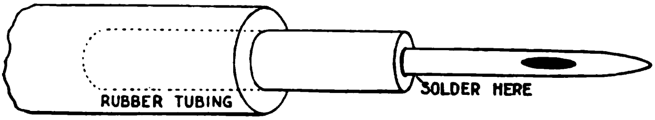
The Arabs believe that some horses are predestined to evil accidents; and, like the Osmanlys, they think that the owners of other horses must sooner or later experience certain misfortunes, which are indicated by particular marks on the horses' bodies. Thus, if a mare has a star on the right side of the neck, they believe that she is destined to be killed by a lance. If the star be on one of the shank bones, the owner's wife will prove unfaithful to her husband, and the orthodoxy of the latter is liable to suspicion. There are above twenty evil marks of this kind, which have at all events the bad effect of depreciating the horse's value by two-thirds or more. The Arabs do not mark their horses, as some imagine; but the hot iron, which they frequently apply in curing a disease, leaves an impression on the skin that appears like an intended mark.

AN AUSPICIOUS ALLIANCE. A significant sign of the times, and one that meets with our heartiest approval, is the recent election of S. B. Nelson, D.V.S., Professor of Veterinary Medicine and Comparative Pathology in the Washington State Agricultural College, to the presidency of the State Board of Health. Veterinary medicine is becoming our most valuable and valued ally in the fight against disease, and Dr. Nelson's election is not only a graceful recognition of this fact, but also a deserved tribute to his long and faithful service as Secretary of the Board. We are proud of the rapid progress made of late years by our sister profession, and glad to recognize such men as Professor Nelson, of Washington, and Dr. E. N. Hutchinson, of Oregon, as our professional brethren.—*Medical Sentinel,* February, 1903.

The JOURNAL is in receipt of Division of Veterinary Science New Zealand Department of Agriculture, Report 1901–'02, J. A. Gilruth, M. R. C. V. S., Principal Veterinary Officer and Bacteriologist, Chief of Division.

inflammation, and no suppression of the milk other than you generally get in these cases.

The writer was called to this case at about 5 P.M. April 8th. When seen the animal was down, head on one side and presenting every symptom of the insensible stage of this disease, breathing heavily, with occasional convulsive movements of the limbs, somewhat bloated and very little reflex noticeable in touching the eyeball. Cow had calved the day before and had been down for several hours. The article on oxygen treatment being prominent in my mind, I advised the owner to allow the cow to be taken to the college for treatment, and after being informed that she would probably die in any event, he agreed to my proposition. At about 7 P.M. she was loaded upon an ordinary farm wagon and carried nearly three miles in a cold driving rain, arriving at the college at about 8 P.M. At that time she showed marked symptoms of approaching death—eyes set and devoid of reflex, gasping for breath, lying flat on one side with tympanites somewhat more marked. Soon after beginning the injection of the oxygen it became very evident that she would die unless something was done immediately; although we did not expect that it would prove of any benefit, she was tapped, however; her breathing soon came easier, and the injection of the gas was continued after an interval of about thirty minutes. (Delay in fitting tube.) In one hour's time, 9 P. M., eyes were closed and upon stimulation showed evident reflex movement, there were also nervous tremblings or twitchings of the limbs. Temperature, 101°.



At 9.30 P.M. she was lying quietly flat on side, breathing easily and regularly, without any throat sounds whatever.

At 11.30 P.M. she was lying in a natural position, that is, on the sternum, looking bright and taking an evident interest in all that transpired.

At 12.30 A.M., April 9, lying natural. Injection repeated.

At 6 A.M. she was upon her feet moving about and looking for something to eat. Temperature, 101.3°; pulse, 60. Injection repeated after milking out the udder. She was given a small feed of hay and a sloppy bran-mash, to which she immediately turned her attention. A little later she was given a quart of raw oil, although shortly afterward it was seen that she did not need it, as her bowels were in perfect condition

At 12 noon, temperature, 101.2° ; pulse, 60. Had eaten a little of the hay and mash. Udder milked out and injection repeated.

At 7 P.M. Temperature, 101° ; pulse, 60. Apparently feeling about normal.

At 8 A.M., April 10th, temperature, 101° ; pulse, 54. General improvement marked.

At 12 noon, temperature, 101.2° ; pulse, 60.

At 6 P.M. Temperature, 101.3° ; pulse, 60.

At 6 A.M., April 11th. Temperature, 101.2° ; pulse, 57. Lying naturally, chewing cud.

At 12 noon, temperature, 101.1° ; pulse, 56.

At 6 P.M. Temperature, 101.2° ; pulse, 56.

At 9 A.M., April 12th. Temperature, 100.3° ; pulse, 56. Gave seven quarts of milk.

At 12 noon, temperature, 101° ; pulse, 56. As the day was warm she was tied out to eat grass for an hour. At 6 P.M. she gave about four quarts of milk.

It is not supposed that the profession will accept this record as final in the treatment of this disease, but it is hoped that it will stimulate them and wake them up to the fact that here is a field for investigation with a path outlined. By reporting their several experiences to our magazines we shall in the end arrive at something definite. This outcome we all shall look forward to and welcome with almost if not quite as much enthusiasm as the advent of serum therapy or even tuberculin.

The article to which reference has been made stated that M. Knusel, a veterinarian in Lucerne, Switzerland, had treated 22 cases in this manner, all of which recovered, and in general the recovery was rapid and marked, as in the case here reported—although in most instances more so. For example, the statement was made that they were up and looking for food in from thirty to sixty minutes after a single injection of the gas. It is offered by way of explanation of the action of oxygen in this disease, that in all probability the germ is anaërobic and, therefore, is destroyed or, at least, rendered inactive by the presence of the gas in the circulation. This theory is borne out by the fact that relapses may occur, but relief is immediately secured by a fresh injection of oxygen.

Veterinarians, this is no "fake." Give it a trial and report your cases to the JOURNAL OF COMPARATIVE MEDICINE, etc. I can offer no definite figures, but it seems to me that at a moderate expense a five-gallon tank might be secured, having a wide diameter and setting low so as not to be unwieldy.

In all probability we shall have further reports to make along this line, as the college has undertaken to treat cases free of charge in order that a more or less exhaustive series of experiments may be carried out.

All letters of inquiry addressed to the writer will be cheerfully answered.

LIPOMA OF A HORSE.

By John J. Repp, V.M.D.,
AMES, IOWA.

On March 30, 1900, a sorrel carriage gelding, eight years old, was brought to my clinic at the Veterinary Hospital, Iowa State College, to be treated for a swelling over the external face of the right anterior crural region which had been developing for a year. I found a smooth, flat tumor nearly a foot in diameter. It was not attached to the skin, but the skin showed some scars, which resulted either from ulceration or from attempts at treatment. The tumor was not prominent when the horse was standing, but, when he flexed the leg in advancing it became quite prominent when seen from the driver's seat, and on account of its unsightliness the owner wished to have it removed. The horse was cast on the grass and anæsthetized with chloroform. The hair was shaven over the tumor and the site washed with 5 per cent. carbolic acid. With a convex bistoury an elliptical incision was made to enclose a space eight inches long and four inches wide. The tumor was then dissected from the skin and the underlying tissues to which it was loosely attached, and removed. The tumor was circular in outline, about ten inches in diameter, three inches thick in the centre, and tapering to a very thin periphery. Its weight was four pounds eight ounces. It showed the characteristic lipomatous structure throughout, not being mixed with any other kind of tumor tissue. There was a well-developed reticulum of connective tissue enclosing lobules of adipose tissue one-eighth to one-half inch in diameter. It imparted an oily sensation to the hands, and the knife used in cutting it was smeared with grease. These latter features will always enable one to recognize a lipoma. The accompanying figure represents one-half of the tumor and shows the elliptical piece of skin which was removed with it. The photograph was made after the specimen had been kept in formaldehyde for several years.

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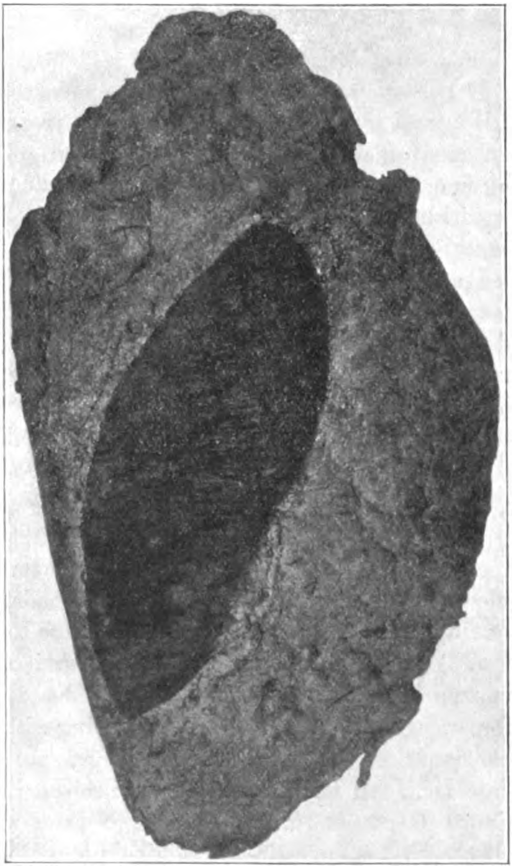
On account of the large cavity resulting from removal of the tumor healing progressed slowly but uninterruptedly under daily washing with a disinfecting solution, until, finally, the wound closed up in such a manner as to leave only a small cicatrix to indicate that the locality had been the seat of a tumor.



Veterinarians in the East should be on their guard against one who goes under the name of Dr. A. Picquet, who claims to be a graduate of a French college, an ex-army veterinarian, and an acquaintance with many prominent veterinarians. He is an impostor, and not deserving of any assistance.

EDITORIALS.

CANADA'S PERIL.

We sincerely trust that the profession in Canada will not allow the school at Montreal to close its doors for want of adequate support. A movement inaugurated by the profession would have a strong bearing upon the Government, through the influence of those engaged in agriculture, dairying, and live-stock breeding, whose interests are greatly imperiled when institutions of this kind are not well supported and properly maintained. The day has gone by when veterinary colleges should be established or continued for individual profit or gain; the day has dawned when these schools should be nurtured only for higher education, a purpose single only to the public welfare and with a constant determination of a true fostering and care of the public health and wealth of all nations.

COLLEGE CHANGES.

With the closing of Harvard Veterinary Department and the prospective closing of the doors at Montreal, Canada, comes the announcement that the Veterinary Department of the Iowa Agricultural College at Ames, Iowa, will increase its curriculum to four years of eight months each. This extension of the course in the Veterinary Department we understand is in keeping with the courses in all the other departments of the State College. In conjunction with the change Dr. John H. McNeal has been selected as the Dean of the Veterinary Department. As we go to press we have not been able to learn what changes in the curriculum are to be made, or what additions to the teaching staff added to cover the extended course. We trust that a more liberal support by the State is to be accorded, more adequate buildings, and additions to the faculty to insure a proper measure of success for this the first American veterinary institution to adopt a four-year course.

From the new Administration in the city of Philadelphia the veterinary profession are looking forward to some much-needed reforms in meat and milk-inspection. The Keystone Veterinary Medical Association is active in urging this advancement.

LEGISLATION.

NEW JERSEY.

Assembly Bill No. 212 of the New Jersey Legislature, providing for the reopening of the veterinary registry books of the State of New Jersey for three months, was put to sleep in committee in short order by the Legislation Committee of the Veterinary Medical Association of New Jersey.

Assembly Bill No. 125 (amendment to act regulating medical practice) was withdrawn by the introducer on account of objectionable features pointed out by the Veterinary Medical Association of New Jersey and the representatives of other allied professions.

Assembly Bill No. 272 (medical bill), substitute for Assembly 125, was amended in committee at the request of the Veterinary Medical Association of New Jersey, so as to further safeguard the veterinary profession. This bill was favorably reported by the committee with veterinary amendment and finally passed.

There is a provision in the new New Jersey automobile law protecting horsemen. The driver of a motor vehicle is required to stop his machine, when signalled to do so, until the horse or horses are driven past.

CONVICTION UNDER NEW JERSEY'S NEW VETERINARY LAW. WARNING TO OFFENDERS.

The first case tried under New Jersey's new law, Chapter 18, laws 1902, resulted in the conviction of the defendant.

R. R. Sample was arrested and held for the January Grand Jury of Monmouth County, which indicted him for practising veterinary medicine without a license in violation of the law. He was tried, convicted, and fined $100 and costs of court, bringing the amount up to $140. In default of payment he was sent to the Freehold jail, where he is still serving time.

Drs. Height, of Asbury Park, and Clark, of Long Branch, deserve special credit in this case. The Veterinary Medical Association of New Jersey is determined that the law shall be enforced, and offenders had better take warning.

The penalty that R. R. Sample is paying ought to be warning enough. We do not believe that it will be necessary to prosecute many cases in New Jersey.

THE EFFECT OF THE NEW JERSEY LAW.

J. W. Haffer, of Paterson, N. J., was recently graduated from the Ontario Veterinary College, Toronto, Canada. He has opened offices in Fall River, Mass. New Jersey's law bars out all graduates of two-year schools.

AMONG THE COLLEGES.

THE regular meeting of the Alumni Association of the New York American Veterinary College was held in the college building, Thursday April 2, 1903, at 2.30 P.M. The President, Dr. Wm. Herbert Lowe, in the chair. Members present: Drs. R. W. Ellis, R. F. Meiners, J. F. Winchester, W. Horace Hoskins, W. H. Lowe, Wm. Dougherty, W. C. Miller, J. L. Robertson, F. R. Hanson, T. E. Budd, W. J. Coates, H. D. Gill, Wm. Anderson.

The minutes of the previous meeting were read and approved. It was then reported that the annual banquet was to be held, in conjunction with the Alumni Association of the American Veterinary College and the New York College of Veterinary Surgeons, at the Hotel Marlborough on that evening at 7 P.M.

In the absence of the Treasurer, Dr. Miller reported that there was a balance of $40 in the treasury.

The class of 1903 was admitted to membership to this Association, as follows: Drs. W. J. Butler, W. W. Bennett, G. E. Smith, F. Glynn, S. A. Selby, C. E. Willis, F. M. Kettner, M. Smith, C. D. Huxtable, A. Berdan, J. M. Young, F. D. Owens, H. Stark.

There was a discussion on the subject of increasing the membership to make this society a more powerful factor, and to this end upon motion the President appointed the following committee representing each school to solicit new membership: Dr. W. C. Miller, Chairman; Dr. H. D. Gill, Dr. R. W. Ellis.

The following officers were elected for the ensuing year: President, Dr. W. H. Lowe; Vice-President, Dr. H. D. Gill; Secretary, Dr. W. C. Miller.

Under the head of new business, Dr. Hoskins asked for information through the President of the workings of the College for the purpose of aiding and lending the support of the Association to it in whatever way it might be of service. Dr. Lowe referred to Dr. Coates not knowing the workings of the College, and Dr. Coates suggested that hereafter Dr. Munn of the Council, be invited to attend the Alumni meeting, where the workings of the Council for the benefit of the College might be learned, Dr. Munn being on the Committee for the Veterinary Department. Dr. Hoskins then put it in the form of a motion that Dr. Munn be notified at a reasonable time of such meetings, inviting him to attend, which was seconded and carried.

A discussion then arose in regard to means for the advancement of the College in regard to new buildings and better facilities for working, Dr. Hoskins then made a motion that the officers and executive committees of the Alumni Associations of the A. V. C. and N. Y. A. V. C. meet jointly some time during the winter to draft resolutions for the same, and to report to the Association at the regular meeting.

The President, W. H. Lowe, then appointed the following members to act on the Executive Committee for the following year: Dr. R. W. Ellis, Chairman; Drs. Wm. Anderson, J. W. Fink, T. E. Budd, W. H. Hoskins. Motion in order to adjourn.

F. R. HANSON,
Secretary.

COMMENCEMENT EXERCISES.

POSTGRADUATE COURSE, CHICAGO VETERINARY COLLEGE.

THE following members of this class having complied with the requirements prescribed by the trustees and faculty received their postgraduate diplomas on February 14, 1903:

S. C. Bogart, Chatham, Ontario, Canada (Ontario Veterinary College); O. C. Bradley, Mannington, W. Va. (National Veterinary College); J. F. Fahey, Brockton, Mass. (McGill University, Veterinary Department); C. J. Hackett, Muscatine, Iowa (Western Veterinary College); W. A. Haynes, Jackson, Mich. (Grand Rapids Veterinary College); L. M. Klutz, Clinton, Mo. (Chicago Veterinary College); A. Lames, Dysart, Iowa (Chicago Veterinary College); T. Lambrecht, Montevideo, Minn. (McKillip Veterinary College); R. N. McCarrol, Ft. Collins, Colo. (Western Veterinary College); E. L. Morgenroth, Boltonville, Wis. (Chicago Veterinary

College); J. F. Olweiler, Elizabethtown, Pa. (McKillip Veterinary College); J. M. O'Reilly, Merrill, Wis. (Chicago Veterinary College); J. M. Phillips, St. Louis, Mo. (Chicago Veterinary College); W. B. Scott, Shandon, Ohio (Ontario Veterinary College); W. S. Scott, Oak Park, Ill. (Montreal Veterinary College); G. F. Sheppard, Edinburg, N. D. (Ontario Veterinary College (J. N. Sheppard, Fargo, N. D. (Chicago Veterinary College); F. N. Sherrick, Connellsville, Pa. (Ontario Veterinary College); W. M. Simpson, Malden, Mass. (Montreal Veterinary College); A. Tyler, Elgin, Ill. (Chicago Veterinary College).

CHICAGO VETERINARY COLLEGE BANQUET.

The Annual Banquet given to the Faculty and Students by the Trustees of the Chicago Veterinary College was held at the Sherman House, Wednesday evening, March 11, 1903, at 8 P.M. A sumptuous menu was served, and the tables being cleared and the cigars passed around, Professor E. L. Quitman acted as toastmaster. Professor A. H. Baker responded to the toast, "The Chicago Veterinary College." Mr. F. H. McMahon, to the toast, "Conclusions of a Senior Student." Mr. G. H. Harland, to the toast, "Conclusions of a Junior Student." W. R. Edwards, to the toast, "Aspects of the Profession in the South." On behalf of the faculty, Professor J. M. Wright responded to the toast, "The Profession, Past." Professor A. S. Alexander, to the toast, "The Profession, Present." Professor G. A. Lytle, to the toast, "The Profession, Future." Professor J. Dill Robertson, M.D., to the toast, "The Sister Profession." For the Alumni, Dr. P. Quitman responded to the toast, "The Alumni of the Chicago Veterinary College." Numerous impromptu toasts were responded to by the various members of the faculty and invited guests present. The musical programme furnished was as follows:

Song—"The Goblins," by the College quartette, Messrs. Axby, Parks, Hisgen, and Perkins. "Bedouin Love Song," Solo, by Mr. W. H. Cork, Jr. Song—"Barcarolle." by Mr. J. M. Parks. Song—"The Toreador Song," by Mr. W. H. Cork, Jr. Song—"Farmer John," by the College quartette, Messrs. Axby, Parks, Hisgen, and Perkins. Whistling Solo, by Professor G. M. Cushing. Song—"The Holy City," by Mr. J. M. Parks. Piano Solo, by Mr. Irving C. Hancock.

The dining-hall was beautifully decorated with ferns and roses.

All present had an enjoyable time, and the function was concluded with three cheers for the C. V. C.

CHICAGO VETERINARY COLLEGE.

The nineteenth annual commencement exercises of this college were held at the College Auditorium on Friday evening, March 27, 1903. The Auditorium was handsomely decorated for the occasion, and was filled with an appreciative audience of more than three hundred, numerous ladies, friends of the faculty, and graduating class being present.

Professor A. H. Baker presided, and the following members of the faculty were present: Professors Joseph Hughes, M.R.C.V.S.; A. S. Alexander, F.H.A.S., M.D.C.; E. L. Quitman, M.D.C.; J. F. Ryan, D.V.S.; G. A. Lytle, M.D.C.; G. M. Cushing, M.D.; L. A. Merillat, M.D., D.V.S.; E. Merillat, A.B., M.D.V.; James M. Wright, D.V.S.; James Robertson, M.D.C.; John D. Robertson, M.D., and C. A. White, M.D.C. In a short introductory address, Professor Baker commented on the exceptionally good showing made by the class of 1902–03, complimenting them on their regularity in attendance, general conduct, and high average in their final examinations.

Professor Hughes then read the Secretary's report, congratulating the present class on their high attainments, and stating that in point of quality they have never been surpassed by any previous class. He alluded to the fact that this year was a record breaker both with regard to the number of honorary graduates and regular students attending. The classes of 1902–03 comprised 185 regular students and 20 postgraduates. Of the regular students 35 were from other schools, no doubt attracted by the high character of the course given by this college. He pointed out that the Chicago Veterinary College had this year the largest attendance of any three-year veterinary school on this continent, or for that matter in the English-speaking world. On behalf of the trustees, he wished to publicly thank the faculty for their earnest efforts and devotion to duty during the past session. Efforts such as theirs deserve reward. The large and appreciative classes, who so regularly attended and worked so assiduously under their guidance, and who at final examinations have been so successful, amply compensate them. Concluding, he announced the names of those who had passed the final examinations.

R. M. Allen, Marshalltown, Ia.; J. L. Axby, Guilford, Ind.;

F. N. Anderson, Buffalo, N. Y.; L. F. Barber, Tyndall, N. D.; F. R. Bernard, Sheridan, Ill.; H. P. Boettner, Perryville, Mo.; P. H. Browning, Carrollton, Mo.; D. B. Clark, Janesville, Wis.; A. B. Cox, Chicago, Ill.; C. A. Dawdy, Greenville, Ill.; A. L. Deal, Wilmot, Ohio; C. S. Evans, Grand Island, Neb.; E. O. Faires, St. Jacob, Ill.; O. K. Faires, St. Jacob, Ill.; L. A. Forge, Burlington, Wis.; G. J. Graen, Toulon, Ill.; S. Gault, Knoxville, Ill.; F. A. Gibbs, Palatine, Ill.; H. H. Gibbs, Flora, Ind.; H. B. Hallenberger, Hannibal, Mo.; C. A. Hatterscheid, Corwith, Iowa; II. F. Hisgen, Chicago, Ill.; A. B. Hollis, Des Moines, Iowa; J. L. Hoylman, Wilsonville, Neb.; J. B. Jaffray, Chicago, Ill.; A. Kaderabek, Jr., Delafield, Wis.; W. H. Kenwell, Mt. Eaton, Ohio; G. W. Johnson, Chicago, Ill.; H. J. Kohler, Somerville, N. J.; E. L. Lewis, Opelousas, La.; James Lewis, McKinney, Tex.; D. J. McMahan, Noblesville, Ind.; L. B. McMichael, St. Jacob, Ill.; H. J. Mongeau, Mantens, Ill.; N. C. Nelson, Manistee, Mich.; J. H. Newman, Little Falls, Minn.; C. Olson, Athens, Ill.; G. M. Otis, Des Moines, Iowa; J. M. Parks, Covington, Ky.; L. J. Price, Liberty Center, Ohio; F. E. Perkins, Ellsworth, Wis.; L. H. Quitman, Chicago, Ill.; J. W. Robinson, Coal Harbor, N. D.; G. E, Repp, Chambersburg, Pa.; A. H. Schmoyer, Boynton, Pa.; C. J. Schultz, Columbus, Wis.; R. Snyder, Dixon, Iowa; C. J. Spencer, Jasper, N. Y.; J. F. Spiker, Jr., Chariton, Iowa; C. E. Stockton, Braddock, Pa.; J. F. Talbert, Edgerton, Kas.; W. W. Talbot, Omaha, Neb.; J. L. Ward, Bowling Green, Mo.; C. M. Weise, Plattville, Ill.; G. R. Weise, Priuceton, Ill.; M. M. White, Shreveport, La.; W. D. Wright, Walla Walla, Wash.; M. J. Woodliffe, Denver, Col.; B. J. Zimprich, Marshall, Wis.

The following comprise the honor list:

J. L. Axby, C. A. Dawdy, C. A. Hatterscheid, A. B. Hollis, J. B. Jaffray, H. J. Kohler, E. L. Lewis, D. J.McMahan, C. Olson, G. M. Otis, J. M. Parks, L. H. Quitman, J. W. Robinson, A. H. Schmoyer, C. G. Schultz, R. Snyder, C. M. Weise, M. M. White, W. D. Wright, M. J. Woodliffe, B. J. Zimprich.

Following the Secretary's report, Professor A. H. Baker conferred the degree of Doctor of Comparative Medicine (M.D.C.) on the members of the class, and Professors Hughes and Quitman distributed the diplomas.

To Professor L. A. Merillat fell the pleasing duty of distributing the prizes, and as each successful recipient came forward to claim his hard-earned honor he was felicitously addressed by the professor.

Dr. C. G. Schultz received the gold medal for the highest general average, and also the gold medal in anatomy. Dr. Rudolph Snyder gold medal in equine pathology; Dr. B. J. Zimprich, gold medal in cattle pathology; Dr. Carl Olson, gold medal in general surgery; Dr. L. H. Quitman, prize in materia medica; Dr. D. J. McMahan, prize in lameness; Dr. J. L. Axby, prizes in bacteriology and physiology; Dr. C. A. Dawdy, prize in meat and milk inspection; Dr. W. J. Robinson, prize in hygiene; Dr. J. B. Jaffray, prize in canine and feline pathology; Dr. C. A. Dawdy, prize in helminthology, and Dr. L. B. Michael, prize in dentistry.

Dr. A. Kaderabek was class prophet, and Dr. J. L. Axby valedictorian.

In conclusion, Professor A. H. Baker delivered the doctorate, giving the class valuable advice and encouragement, commenting upon the fine prospects of the profession, wishing them Godspeed, and impressing upon them the privilege of turning to their alma mater for future advice if necessary, and wished them to consider every individual member of the faculty as their friend. He urged them to conduct themselves in such a way as to command the respect of the people, and thus uphold the dignity of the profession, and win fame for themselves and reflect credit upon the Chicago Veterinary College.

Bulletin No. 125 *of the U. S. Department of Agriculture,* relative to "Horse Feeding Experiments," just issued, is a valuable compilation of the results of a long line of experimental tests of this important factor in animal industry.

Bulletin No. 44 *of the Bureau of Animal Industry,* U. S. Department of Agriculture, is a very complete exposition on the "Infectiveness of Milk of Cows which have Reacted to the Tuberculin Test," by Dr. John R. Mohler, A.M., V.M.D., Chief of the Pathological Division.

Many excellent papers are promised for the meeting at Ottawa, Canada. Secretary Repp is carrying on the work of his office in a very vigorous manner, while our Canadian colleagues are preparing for a royal entertainment of those who will join in the pilgrimage to that noted seat of government.

Dr. C. R. Webber, graduate of Chicago Veterinary College, is associated with his brother at Rochester, N. Y. They conduct a veterinary hospital and livery and boarding stable in connection with their practice.

SOCIETY PROCEEDINGS.

RHODE ISLAND VETERINARY MEDICAL ASSOCIATION.

A meeting of the veterinary surgeons of Rhode Island was held in the Hotel Dorrance, January 27th, for the purpose of organizing a Rhode Island Veterinary Medical Association, and the promoters of the new organization are said to be planning to secure the enactment of a State law regulating the practice of veterinary medicine and surgery. There are twenty or more regularly graduated veterinarians in the State. It is proposed to eventually secure the passage of a law regulating practice, and the Legislature will be asked to enact a law prohibiting the practice of veterinary medicine and surgery by those not possessed of a diploma as evidence of proper training, unless they have regularly engaged in practice as veterinarians for a period of five years preceding the passage of the proposed act.

The meeting was called to order by Dr. L. T. Dunn. One of the first matters of business was the election of officers, which resulted as follows: President, A. T. Parker; First Vice-President, L. T. Dunn; Second Vice-President, J. S. Pollard; Secretary, T. E. Robinson; Treasurer, J. T. Cunningham; Executive Committee, Drs. Dunn, Fry, Richardson, Bertran, Monahan, McLaughlin, and Tucker.

The members of the Executive Committee will draw up a set of by-laws to be presented at the next meeting of the organization. At present the social features of the Association are said by members to be the principal benefits to be derived. No legislative action was taken at this meeting.

Governor Garvin was, as a practising physician, made an honorary member of the Society.

L. T. DUNN, D. V. S.

PASSAIC COUNTY VETERINARY MEDICAL ASSOCIATION.

The regular monthly meeting of the Passaic County Veterinary Medical Association was held at 169 Paterson Street, Paterson, N. J., on Tuesday evening, February 3, 1903, with Dr. William Herbert Lowe, President, in the chair.

On roll-call the following members answered to their names: Drs. William J. Reagan, M. A. Pierce, T. J. Cooper, Wm. H. H. Doty, David Machan, John H. Degraw, Wm. Herbert Lowe, of Paterson; William C. Berry, of Haskell, and J. Payne Lowe, of Passaic.

Dr. David Machan was chosen Secretary *pro tem.*

The minutes of the last regular meeting were read and approved.

Dr. Cooper moved that the Association provide for a substitute for the relief of any member when needing the services of the same.

This motion was discussed *pro* and *con.* Several members were of the opinion that this was a matter that could be best arranged by members themselves as occasion required. Motion was finally carried. Dr. Cooper then moved that the Chair appoint a committee of three on the substitute proposition, to report at the next meeting. The Chair appointed, as such committee, Drs. Cooper, Reagan, and Doty.

Dr. J. Payne Lowe spoke in favo
of sending specimens to the State
examination when the Association r
Upon motion of Dr. Reagan the A
paid out of the treasury when, in t
was of such a nature or character a
was only to be allowed upon the wri

The Treasurer, Dr. M. A. Pierce,
the treasury.

The delegates to the annual meet
tion of New Jersey, held at Trento
report:

"Your delegates would report tha
Association was represented at Tr
Fredericks, and President William

"The sessions were well attended
from all parts of the State, by seve
of prominent veterinarians from neig
Pennsylvania were Drs. Leonard P
ment of the University of Pennsylva
JOURNAL OF COMPARATIVE MEDIC
New York, Dr. Veranus A. Moore,
Bacteriology at the New York Stat
Ithaca; and from New York City,
Robert Dickson, Robert W. Ellis, J
editor of the *American Veterinary*
in the New York American Veterin

"The morning session was given o
the election of officers, and the deli
were many salient points in the add
lishment at Trenton of a State Bur
with a Chief Veterinarian as State
tion the veterinary sanitary work o
economically administered than by
independently without professional
said in his address that a layman o
propriety attempt to direct the offic
State as a layman or an M. D. has
work of the State.

"A Conference Committee was a
the State Board of Health, the Stat
culosis Commission, and others con
satisfactory to all concerned, as reco
preliminaries are arranged it is pro
legislation.

"The afternoon session was devote
Professor Veranus A. Moore read a
vention of Infectious Diseases of A

"A paper on the 'Relation of Stat
Teaching Schools, the Profession, a
William Herbert Lowe, was read a

"Dr. Leonard Pearson gave some valuable data based on experiments made by him on the immunization of cattle against tuberculosis.

"The Veterinary Medical Association of New Jersey will hold its semi-annual meeting at the United States Animal Quarantine Station at Athenia, on the Newark and Paterson branch of the Erie Railroad, and on the Boonton branch of the Delaware, Lackawana and Western Railroad, on Thursday, July 9, 1903, which will give members of the profession an excellent opportunity not only of seeing fine specimens of imported stock, but of learning something of the method and system of inspection and quarantine as conducted by the Federal Government."

The report of the delegates was received and it was moved and carried by unanimous vote that the Passaic County Veterinary Medical Association approve and endorse the recommendations of President William Herbert Lowe made in his recent address before the Veterinary Medical Association of New Jersey, at Trenton, for the establishment of a State Bureau or Commission of Animal Industry with a Chief Veterinarian as the State Veterinarian of the State of New Jersey, and that a committee be appointed by this Association to aid the committee of the State Association in this important undertaking. The Chair appointed, as such committee, Drs. Pope, Fredericks and J. Payne Lowe.

The Association learned with regret of the illness of Dr. John Kehoe, and, upon motion of Dr. Machan, Dr. J. Payne Lowe was appointed a Committee of one to call upon Dr. Kehoe at his home.

The President appointed Dr. Reagan Essayist for the March meeting. The subject of his paper is "Poisoning in the Dog." On motion meeting adjourned at 10.30 P. M.

D. MACHAN.
Secretary *pro tem*.

The regular monthly meeting of the Passaic County Veterinary Medical Association was held at 169 Paterson Street, Paterson, N. J., on Tuesday evening, March 3, 1903.

The President being absent, his brother, Dr. J. Payne Lowe, was requested to take the chair. He called the meeting to order at the usual hour and upon roll-call a quorum was declared present.

The minutes of the last regular meeting were read and approved.

Dr. Cooper reported progress for the Committee on Substitute.

Dr. J. Payne Lowe reported that Dr. Kehoe was much better and out again.

Dr. Cooper raised the question as to whether glanders was on the increase or decrease in this county: which was discussed by the members present, each giving his individual experience.

The members then listened to a most creditable paper on "Poisoning in the Dog," by Dr. Reagan. Dr. Reagan was given a vote of thanks, and it was ordered that a type-written copy of his paper be sent to both veterinary periodicals for publication. Dr. H. K. Berry was appointed Essayist for the April meeting. On motion meeting adjourned at 10.30 P. M.

WM. J. FREDERICKS,
Secretary *pro tem*.

The regular monthly meeting of the Passaic County Veterinary Medical Association was held at the office of Dr. Wm. Herbert Lowe, corner of Paterson and Van Houten Streets, Paterson, N. J., on Tuesday evening,

April 7, 1903. The meeting was called to
Vice-President, Dr. David Machan.

The minutes of the March meeting were

Unfinished business. Committee on Subs

New Business. Dr. Cooper reported that
ing less than the schedule rate. On motio
the next meeting.

Dr. H. K. Berry, the Essayist, being abse
reported and discussed and the meeting tu
profitable one. On motion meeting adjour

MEETING OF THE VETERINARY
OF NEW JER

The semi-annual meeting of the Veterin
Jersey will be held at the United States A
port of New York, located at Athenia, N.

Veterinarians of neighboring States a
Athenia is on the Newark and Paterson b
also can be reached via the Boonton branc

THE ILLINOIS STATE VET
ASSOCIATI

The twenty-first semi-annual meeting o
Urbana, February 17th, at Morrow Hall, S

Meeting called to order at 10 A. M.

Members present:

Drs. W. W. Giles, of Gilman; E. J. F
Canton; D. McIntosh, of Champaign; T.
Stringer, of Watseka; L. C. Tiffany, of
Paxton; C. S. Hayward, of Mattoon; E.
Ratz, of Red Bud; F. H. Barr, of Pana
H. A. Pressler, of Fairbury; D. E. Kinsell
of Sidell; C. C. Mills, of Decatur; A.
Frye, of Naperville.

New member elected:

Dr. Andrew Robertson, of Mt. Carmel.

Minutes of last meeting were read and a

Report of Treasurer showed balance on

Bills allowed:

For printing 2000 envelopes . .
For printing 1000 letter-heads .
For printing 500 Constitutions and
For printing 40 programmes . .
For stamps . . . . . .
For express . . . . . .
For Secretary's fees . . .

Total . . . . .

The following papers were read and discussed:

"Gastrointestinal Catarrh." By Dr. F. H. Barr, of Pana.

"Veterinary Obstetrics." By Dr. W. J. Martin, of Kankakee.

"Fraternalism in Veterinary Science." By Dr. T. W. Corkery, of Urbana.

"Analogous Foot-and-Mouth Disease." By Dr. C. C. Mills, of Decatur.

"Azoturia and its Treatment." By Dr. F. H. Ames, of Canton.

"The Treatment of Tetanus by Excessive Doses of Potassium Bromide." By Dr. D. McIntosh, of Champaign.

Under this last topic Dr. McIntosh reported the recovery of 23 cases of tetanus, each of which received from 3½ to 5 pounds of potassium bromide in their drinking-water, covering a period of three to five days. He stated that he encouraged the animal to drink excessive amounts of this drug, and invariably when he had received from 3½ to 5 pounds perfect relaxation of the muscles occurred, and recovery took place. There seems no danger in pushing the drug, and he aims to get this amount into the animal in as short a time as possible, usually from two to five days.

It being understood that a bill had been presented to the Legislature amending our present bill so that registration might again be opened for a period of six months to those quacks who had not availed themselves of securing a license to practise, the following resolution was presented by the Committee on Legislation, and passed.

Resolved, That it be the sense of this Association that we are strongly opposed to the passage of any amendment to the present Veterinary Bill.

Moved and seconded that the Secretary notify all members and secure their co-operation to defeat the passage of the amendment.

A vote of thanks was given the Trustees of the Illinois College; also to Dr. McIntosh for the use of the hall and other courtesies.

Adjourned to meet in Chicago at the call of the President.

W. H. WELCH,
Secretary.

CENTRAL CANADA VETERINARY ASSOCIATION.

The second meeting of the Central Canada Veterinary Association was held in the Committee Room of the City Hall, Ottawa, on Monday evening, April 13th, President Harris in the chair.

The meeting was well attended, those present being Drs. Fisher and McGregor, Carleton Place; Higginson, Rockland; McGuire, Cornwall; Thacker, Renfrew; Young, Almonte; Young, Cobden; Young, Merrickville; Lynchke, Carp; Allen, Brockville; Haworth, Eganville; Rutherford, Harris, Higgins, Hollingsworth, White, and Boucher, of Ottawa.

The following new members were elected: J. J. McGregor, Carlton Place; C. W. J. Haworth, Eganville; W. G. Gilpin, Ottawa; Charles Thacker, Renfrew, and J. Massie, of Kingston.

The Constitution and By-laws as prepared by the committee appointed at the previous meeting were adopted, with few changes. The Constitution and By-laws provide rules for the conduct of business, a Code of Ethics regulating professional conduct, qualifications for membership, and a Council to whom matters pertaining to the welfare of the Association are referred.

A resolution expressing sympathy with Dr. A. E. James, a member of the Council, in his recent illness, was passed.

The coming meeting of the A. V. M. A. was referred to by Dr. J. G. Rutherford, who stated that while it was desired that as many as possible should avail themselves of the privilege to become members, this was not necessary, and they would be heartily welcomed as guests at the meeting in September, when the veterinary profession would practically own the capital city of Canada.

On motion of Dr. Hollingsworth, of Ottawa, seconded by Dr. McGuire, of Cornwall, it was voted that the Central Canada Veterinary Association give the sum of one hundred dollars toward the entertainment of the A. V. M. A. at its coming meeting.

Dr. J. G. Rutherford, Chief Veterinary Inspector to the Dominion, gave a very interesting and instructive talk upon the present method of dealing with glanders in this country. He stated that his idea in presenting in detail the present method of dealing with this disease was to acquaint the members of the profession (who in the past had attempted to manage outbreaks under the Provincial laws) with a quicker and better solution of the problem, namely, that of reporting them to the department which had the authority to take the matter in charge without the delay necessitated by summoning witnesses and bringing delinquents before magistrates, which course has up to the present been necessary. He also stated that the practical results of the present methods of dealing with outbreaks of glanders would, in all probability, be presented to the meeting in September.

The report of a case of phimosis was given by Dr. Lynchke, of Carp, which evolved numerous comments and considerable discussion.

On motion of Dr. McGuire, the meeting adjourned.

CHAS. H. HIGGINS,
Secretary.

PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION.

(Concluded from page 267.)

Dr. S. J. J. Harger, as Chairman of the Committee on Animal Husbandry, presented the following report:

Report of Committee on Animal Husbandry.

The Committee on Animal Husbandry was created two years ago, and only a few reports have been submitted to you. We therefore have no well-trodden paths pointed out by our predecessors to follow; besides, it is only recently that special interest has been awakened upon the relation between animal husbandry and the veterinary educator and practitioner. The specialization of this work from such a standpoint being still immature, we will discuss some of its generalities and perhaps some details.

What we understand by animal husbandry is not a commonplace undertaking of a nature that any one who has a fondness for animals can follow, but one that requires certain qualifications. One needs some training in comparative anatomy, zoology, physiology, biology, chemistry, and botany, a superstructure such as is given in a good agricultural school.

In the language of the schools, animal husbandry is called *zootechnics*—an industrial exploitation of the domestic species. It studies the living animal, not in disease but in health, in a physiological sense. We operate upon the animal to ameliorate his condition, increase his products, intensify the economic functions, such as milk, beef, wool, work, speed, improve the type, and create new breeds. We make use of any operation that will enhance his value.

This requires a knowledge of the principles of heredity, sexual selection for different purposes as modified by the nature of the stock at our command, rearing of the young, feeding for spécial purposes, the exterior or conformation, animal dynamics, fitting of the harness, shoeing, influence of soil and climate.

In all this work the veterinarian may play an important rôle. In these days of the survival of the fittest he must be able to do more than diagnose influenza or resect the cunean tendon. The practice of his profession is not incompatible with the legitimate exploitation of the domestic species in the breeding or the dairy farm. He may not be a practical breeder or an animal economist in its fullest sense, but from his training and knowledge of soundness and heredity he becomes upon some points the natural expert. He is acquainted with the conditions preserving health, the physiological functions, and how to stimulate these to perform their maximum work.

Unfortunately very few of the veterinary schools give the necessary instruction upon this subject, and do not have the facilities for practical teaching. It would be fortunate if schools could add to their clinic room a farm on which animals could be exploited. Information can be gained from text-books, bulletins issued by the experimental stations, visiting, breeding, and dairy farms, and horse shows to study the characters of the breeds and their management. The veterinarian should be a better judge of breeds than horsemen, who are experts by virtue of their millions.

The necessity for the amelioration of our domestic species is very evident. Live-stock constitutes one of our largest industries, representing several billions of dollars. The yearly export of farm animals amounts to $50,000,000 and that of animal products $180,000,000. One-fifth of our total annual exports consists of animals and all products and articles manufactured therefrom.

The national prosperity of a country is closely related to the state of its agricultural pursuits and its live-stock. Mohammed (632-57 B.C.), who established the first Arab stud, recognized the need of improved horses. What has been accomplished since can be seen by comparing the Asiatic and African cows, which barely give enough milk to suckle the calf, or the native ox of a century ago, with a Jersey or a Hereford.

Modern animal husbandry tends to specialization of aptitude. Economic conditions point to specialization for certain purposes to the exclusion of all others. The dual-purpose cow, excepting the milking families of the Shorthorn, is fast disappearing. The law of organic balance antagonizes the intense development of more than one economic function in the same individual. The beef, milch, draft, speed, mutton, and wool types have their special characteristics, and thus the creation of many breeds. The animal body is *pliable.* It responds to its environments, feeding, and methodical exercise, which, if the proper conditions be supplied, develop peculiarities and variations that can be still further intensified by judicious breeding.

The Jersey has been especially pampered and fed to produce butter for the London market and the Ayrshire to supply milk for the cheese factories of the surrounding counties. The Dutch (so-called Holstein-Friesian) cow, the most copious milker of all breeds, has been exploited in the same sense for two thousand years. Collings saw in one of his half-bred Dutch calves unusual form and precocious development, and thus laid the foundation of the Shorthorn. Anomalous variations, called "Sports," which are hereditary, sometimes appear and develop into breeds characteristic of distinct economic value. Among such we have the niata, or bulldog-nosed cattle of South America, the polled Durham, polled Angus, corkscrew-tailed French bulldog, and the silken-wooled Mauchamp merino sheep. Fossil deposits of hornless cattle have never been discovered.

One of the greatest problems is the breeding question. Upon it depends the creation of superior families and breeds. Too much emphasis cannot be placed upon the idea of breeding for a purpose, having in mind a definite economic function, type, or breed to be produced, and then selecting the producer accordingly, keeping in view the adaptability of the animal to the location and the market demands. Every animal should be raised with the thought of being well adapted for a certain purpose. This gives him real value. Promiscuous breeding with the "travelling stallion," selected because of its small stud fee irrespective of type or soundness, has destroyed types and brought our live-stock into a state of disordered variation. Vicious crosses should be avoided. Sire and dam should be as much as possible of the same type. If both parents are of sound constitution this may be supplemented by consanguinity or in-breeding. Two unlike types may become harmoniously blended, but this requires judgment and time. The farmer's son deceives himself in expecting to raise a trotter from the common farm mare and a standard-bred stallion standing in the community. This stallion has in this way been harmful to the horse industry in many localities. Such methods have placed upon the market a surplus of unsalable, no-purpose horses. Animals adapted for a special purpose are always in demand. American horses in Europe can be recognized, it is claimed, by a want of uniformity in type.

The various countries of the world have variously contributed to the specialization of the domestic species. Scotland has given us the Clydesdale horse under the patronage of the Highland Agricultural Society, which placed at the disposal of farmers Clydesdale stallions. England, the greatest breeding country in the world, created the Shire horse, and winners of the prizes offered by the Royal Agricultural Society are much sought after as breeders; also, the thoroughbred and hackney. Among cattle the Jersey, Guernsey, polled Durham and Angus, and the latter of the Dutch ancestry from across the English Channel, combined with the native cows of the Teeswater. The Shorthorn, more than any other, has been the potent factor in ameliorating American cattle. France, with its government assistance, developed the well-known Percheron and the Anglo-Norman or French coacher, the latter the product of the old Norman mares and the thoroughbred stallions; also, two other breeds, the Brittany and the Boulonnaire. Some of the latter breed are sent into the valley of the Perche, there "percheronized" and sold to unsuspecting foreigners as Percherons. Germany produces the Frakener and the Mecklenberg, Oldenberg, and Hanoverian coachers; Russia, the Orloff ing, or functional gymnastics of the digestion tract, as it is called, is one of the most potent factors in producing useful variations in any part of the body. Intensive alimentation stimulates all the nutritive functions. It produces early maturity, or precocity. The body becomes more compact and short-legged from the early coalescence of the ossific centres of the long bones. In the cow it intensifies the milk secretion. Young animals, especially those intended for breeding purposes, should be well fed; when poorly fed they mature later, become more leggy and less symmetrical. The stock of a locality should be adapted to the feeding conditions. The larger and more precocious breeds require better management and feeding; the smaller, such as the Jersey, Guernsey, Ayrshire, and the little Brittany, which are the poor man's cows, are better foragers, and better adapted to the poorer pastures and severe winters of Canada and New England.

When the production of a quart of milk under good sanitary conditions costs a fraction more than two cents, economic feeding is an important item to the dairyman who sells his milk wholesale, and the loss incurred by injudicious feeding will reduce his profits. The discussion of the normal or balanced and the unbalanced rations is not idle talk. The preservation of the nutrition ratio, by which we mean the proportion between the digestible proteids on the one part and the combined digestible hydrocarbons (fats) and carbohydrates (starch and sugar) on the other is the basal factor in rational feeding. Too narrow or too wide a ration means a waste of feed. The composition of the ration, besides, should vary according to age and purposes of feeding. The heavy milker requires a more narrow ration—that is, more albumin than the poor milker. The race-horse requires a more narrow ration than the draft-horse. The young, growing animal, which builds up the albuminous tissues of the body, needs a more narrow ration than the adult. Any number of ration combinations can be made in these proportions, according to the food-stuffs at hand and their cost. The food standards cannot always be accepted verbatim, but their underlying principle is a good guide. One must determine what food-stuffs to grow in order to maintain the largest number of animals on the smallest acreage. Soiling, ensilage, and alfalfa recommend themselves because of their heavy yield of forage.

Pennsylvania is a remarkable State for two reasons: its extensive agricultural pursuits and its unequalled mineral products—coal, iron, and oil. The richest agricultural counties are found in the Cumberland Valley, along the south and the southeast; the west, along the Delaware River; the northeast, the northwest, and the southwest. The central counties, extending to the north and northwest, are mountainous and less productive.

The sheep and wool industry has deteriorated. In 1890, 1,612,107 pounds of wool were produced; in 1900, 959,483 pounds, a reduction of 40.5 per cent. Breeders have abandoned sheep-raising, principally on account of the ravages of dogs. Sheep, after being chased by dogs, are prone to abortion, and fatten with difficulty. There is a large area of unproductive land in the central part of the State well adapted for this purpose. A bill is at present before the Legislature requiring all dogs running at large to wear a collar bearing the name and address of the owner. All dogs not so identified can be shot with impunity.

The swine industry is but little developed.

In view, therefore, of many undeveloped resources and the consumption of animal products in excess of production, we see the necessity of introducing modern methods of agriculture and stock-feeding and of improving our grade breeds, in order to equalize the supply and demand and increase the revenue from the land.

S. J. J. HARGER, V S.,
Chairman.

The Committee on Meat Inspection made no report.

The reports of committees having been finished, the subject was then opened for discussion.

The discussion was opened by Dr. Hoskins, who was especially well pleased with the report of the Committee on Intelligence and Education. He wished to add, in addition to the report made by this committee, our recognition of the excellent work done by the Bureau of Animal Industry at Washington under the direction of Dr. Salmon; and also the unequalled work done by our State Live-stock Sanitary Board through the efforts of Dr. Pearson.

Dr. John L. Bradley commended the report of Dr. Harger. He differed with the chairman in reference to crossing pure-bred stallions on native mares. This may not give as good results as where pure-bred mares are used, but he feels sure that the type of horses in the community would be improved by using pure-bred stallions with the native mares.

Dr. Kooker emphasized the importance of selecting pure-bred males with good individual qualities, and as free as possible from defects. By judicially crossing these with females possessing the same qualities good results can be expected. He is a strong believer in heredity and cited several illustrations. One case in particular was a mare stinted to the "Duke of Wellington." The result was a filly that developed three ringbones at the age of three months. Her next foal by the same sire developed four ringbones at about the same age, and was destroyed for this reason. The sire was blamed for these faulty foals, yet no other colts from him showed this defect. This same mare was then stinted to the gray stallion "Pilot," owned at Newton, N. J., and the produce developed three ringbones inside of three months. It was found on investigation that this mare's dam had three ringbones.

Dr. Harger said he believed in hereditary defects to a certain extent. According to observation, spavin is more often transmitted than ringbone. He thinks that not only hocks, or fetlocks, of bad conformation may be transmitted, but that the substance of the bone, if of a poor quality, may be transmitted also.

Dr. J. C. McNeil believes that faulty conformations are transmitted, while accidental defects, as blindness, ringbones, spavin, etc., when they are known to be due to accidental causes, should be no bar to breeding.

It is the opinion of Dr. A. F. Schreiber that the care given to animals has as much or more to do with the offspring as hereditary tendencies do; yet, other things being equal, animals with a pedigree should be chosen, for, as a rule, like produces like.

Dr. H. B. Felton cited a herd of cows that had been under his observation for several years. These were ordinary native cows to start with, but care has been exercised for a number of generations in selecting pure-bred Guernsey bulls of good milking strains to cross with these cows. At the present time this herd has the appearance of thoroughbred Guernseys.

Dr. John L. Bradley again took the floor and concurred with the views of Dr. Felton. He believes that where people cannot afford to have pedigreed stock all through, they should at least choose males of the best possible breeding. People should first decide for what purpose animals are to be used. If it be cows for dairy purposes, use the cows already on hand and get thoroughbred Guernsey or Jersey bulls, and in time good milkers will be produced.

Dr. Hoskins spoke of the constant effort necessary in order to keep any breed or characteristic from losing its identity. He commended highly the report made by Dr. Harger for the Committee of Animal Industry, and urged on the members the necessity of studying the subject of breeding more carefully; that we should take more interest in the work done by the National Breeders' Association and live-stock exhibitions.

Dr. J. F. Butterfield has had the advantage of being a veterinarian as well as a breeder of pure-bred animals. He is a firm believer in the subject of heredity, and believes that peculiar traits may be transmitted for hundreds of generations. He cited as an illustration of this fact shying in horses, which he says may be due to the fear that horses had of wild beasts in the remote past.

The subject of discussions on the reports of committees being closed, the meeting adjourned until Wednesday morning at 10 o'clock.

THURSDAY, MARCH 4, 1903.

The first order of business was the report of the Board of Trustees. They reported favorably on the resignation of Dr. J. C. Kingsland, of Canton, Bradford County. This was regularly adopted by the Association.

The application of Dr. S. C. Weamer lacked the necessary vouchers. The secretary was instructed to return his application and request Dr. Weamer to be present at the semi-annual meeting, when his application would again be considered.

The Corresponding Secretary read a letter from the widow of the late Dr. Reinhart, requesting the Association to dispose of a pair of obstetric forceps for her.

Correspondence was also read from E. W. Powell, Bryn Mawr; J. W. Moore, Myerstown; C. R. Good, Lockhaven; W. A. Meredith, and A. J. Tupler.

Corresponding Secretary's Report.

Dr. M. Moriarity, of Gettysburg, was present and made a verbal report for Adams County.

The following written reports were read and filed: Dr. J. C. Kingsland, Bradford County; Dr. H. W. Turner, of Bucks County; Dr. W. B. Prothero, Cambria County; Dr. W. H. Fry, Centre County; Dr. James B. Rayner, Chester County; Dr. George Magee, Fayette County; Dr. M. J. Collins, Lebanon County; Dr. A. W. Weir, Mercer County; Dr. J. F. Butterfield, Susquehanna County; Dr. G. B. Jobson, Venango County; Dr. W. P. Bagnall, Warren County; Dr. W. J. Waugh, Washington County. Dr. L. E. Meade made a verbal report for Wyoming County. He has the distinction of being the only member of the Association in the County.

Dr. H. P. Eves, of Wilmington, Del., was called to report on veterinary matters in his State. He responded by mentioning the following diseases as prevalent in Delaware: Rabies, hog cholera, anthrax, tuberculosis, forage poisoning, and straw poisoning.

There is a movement at present in his State to secure the necessary laws in reference to regulating the practice of veterinary medicine. At the present time there are practically no laws on this subject.

Dr. Leonard Pearson was called to explain what was being done at Harrisburg in reference to legislation that is of interest to veterinarians especially. He mentioned a number of measures that had been recently agitated or introduced. A bill was recently introduced to allow castrators to register as second-class veterinarians. It is not likely to pass.

A bill has been introduced which aims to prevent the spread of rabies and to suppress the damage done to sheep by dogs. This requires that all stray dogs can be destroyed or quarantined. He thinks that this bill will become a law.

The decrease in the sheep industry in this State is supposed to be due in a large measure to the ravages of dogs.

A bill has also been introduced to prevent the sale of veal calves before they are four weeks old. Such calves should be tagged and put under the control of the State Live-stock Sanitary Board.

A bill to make it possible for butchers to receive pay for tubercular cattle at five cents per pound and not over twenty-five dollars per head. Such meat is to be inspected and the inspector is to be governed by the rules of the Bureau of Animal Industry, or by rules satisfactory to the State Live-stock Sanitary Board.

A bill requesting the appropriation of $3000 to make the necessary investigations in reference to immunizing cattle against tuberculosis has been introduced.

An effort is also being made to obtain an appropriation of $100,000 to assist the University of Pennsylvania in building a new veterinary department.

A photograph of the Association was taken by a representative of the Philadelphia *Press*, after which the Association adjourned for lunch.

The following papers were read and filed: Dr. J. B. Rayner presented two papers, one "Paralysis of the Bowel in a Horse," the other a "Peculiar Case of Tetanus." "The Origin of the 2.10 Trotter," by Dr. Charles Lintz. "Snags that a Veterinarian May Run Against," by Dr. W. S. Kooker. "Requirements for a First-class Dairy," Dr. J. F. Butterfield. "Horse-show Responsibilities," Dr. C. J. Marshall. "A Rare Case," Dr. M. J. Collins. Owing to the lack of time these papers were not discussed.

The embryotomy shears belonging to the late Dr. N. E. Reinhart were auctioned off by Dr. Pearson to the highest bidder. They were purchased by President Rhoads for the sum of four dollars.

The following resolutions were unanimously adopted and ordered spread on the minutes:

Resolved, That inasmuch as the veterinary profession of our State was well supported during the past four years under the administration of the ex-Governor, Hon. William A. Stone; therefore, be it

Resolved, That we, the PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION, in convention assembled, do most cordially express our sincere appreciation of the kindly interest and assistance he always afforded us.

Resolved, That we heartily endorse the Sproul Good Roads bill with the Roberts amendment now pending in the Legislature, and urge the active support of every member of the profession to this proposed legislation.

Resolved, That we commend most heartily the well-directed efforts of our President, Rev. Dr. W. L. Rhoads, in the interest of good roads throughout the State, and acknowledge our indebtedness to him for his earnest and valuable work.

Resolved, That we heartily approve and deeply appreciate the retention by the Governor, Hon. Samuel W. Pennypacker, of our present State Veterinarian, Dr. Leonard Pearson.

Resolved, That we cordially recommend to the Governor the name of Dr. M. E. Conard for the position of Dairy and Food Commissioner.

WHEREAS, The proper education of those who enter the veterinary profession is of the utmost importance to the people of the State; and

WHEREAS, The work of the Veterinary Department of the University of Pennsylvania has been of such a high character as to meet the approbation and commendation of the veterinary profession and all who are interested in higher education; therefore, be it

Resolved, That we urge the members of the State Legislature to support the bill appropriating one hundred thousand dollars ($100,000) toward the erection of a suitable building for the veterinary department of the State University.

WHEREAS, Clean and honest trials of speed are of great value as a means of developing the quality of horses, and are most interesting and instructive as exhibits; and

WHEREAS, Horse-racing receives its best development in the direction of wholesome sport, and is most advantageous to breeders in countries and States where it is under proper governmental control and supervision, while, on the other hand, it is not conducted in the interest of pure sport nor in the interest of horse-breeders in States where there is not some oversight from a high and impartial tribunal; be it

Resolved, That we, the PENNSYLVANIA STATE VETERINARY MEDICAL ASSOCIATION, recommend the establishment of a State Racing Commission, to be composed of men interested in the improvement of horses, to be selected by the Governor, and to be empowered to license and supervise race courses and race meetings, to the end that horse-racing may not be merely tolerated without legal status, but shall be placed on a fixed foundation and shall be honestly conducted, free from gambling. In this way horse-breeding and the improvement of horses may have fixed standing and definite support.

Resolved, That we most earnestly recommend that the incoming officers will insist upon the chairmen and members presenting their reports in writing, or that the Association shall employ a stenographer, that these valuable reports may be properly filed and greater publicity given to the same.

WHEREAS, The great benefits enjoyed by the entire people of our State through the valuable investigations, the great protective measures afforded through the work of the laboratory of the State Live-stock Sanitary Board; and

WHEREAS, The scope of this work has been very much circumscribed by the limited means at their command, and the greater need at this time of more extended investigations of other diseases whose origin is still undetermined, and for which we are without adequate means of defence or protection; therefore, be it

Resolved, That we most urgently recommend a favorable consideration by our State legislative bodies of the asked-for appropriation of $30,000 for the extension of this work.

WHEREAS, We believe that the best interests of our Association will be conserved by a change in our by-laws relating to the election of officers, and we recommend that the Board of Trustees will prepare and submit for the consideration of the Association, at the semi-annual meeting, such an amendment as will provide for the nominations for all elective offices to be made on the first day and the election on the succeeding day thereafter.

The officers for the ensuing year were introduced and installed in their new positions.

Dr. W. L. Rhoads made a motion, which was adopted, that the selection of a place for our semi-annual meeting be left to the Board of Trustees.

Dr. J. C. McNeil made a motion, which was regularly adopted, that a vote of thanks be extended to our local Committee of Arrangements, composed of Dr. W. S. Kooker, S. J. J. Harger, and H. B. Cox; also, to the Reception Committee, composed of C. J. Marshall, B. M. Underhill, and E. M. Ranck.

Meeting adjourned at 5.40 P.M.

C. J. MARSHALL,
Secretary.

PENNSYLVANIA STATE BOARD OF VETERINARY MEDICAL EXAMINERS.

The semi-annual meeting of the Board convened at Philadelphia, Pa., December 15 and 16, 1902. There were two applicants before the Board: Dr. B. E. Nevel, Dover, N. J., and Dr. P. J. Purcell, Bradford, Pa., both having been before the Board at previous examinations. Drs. Nevel and Purcell were granted the license of the Board.

At the meeting of the Board on December 16th Dr. Hoskins reported on the successful prosecution of P. G. White, of Scranton, Pa.; also, on the prosecution of C. E. Hyle, of York, Pa., which was unsuccessful, owing to the decision of the Judge, that as C. E. Hyle had practised for twenty-one years, and for a period of more than twelve years in this Commonwealth, he stated in his charge to the jury the law of 1895 abrogated those of 1889 and 1891, and directed the jury to acquit the defendant.

Dr. Hoskins reported a contribution of two hundred dollars ($200) as having been received from the Pennsylvania State Veterinary Medical Association in August.

Bills were reported for the prosecution of Messrs. White and Hyle, and bills for expenses in attendance at the meeting, all of which were ordered paid.

Approval of the State Association recommending reregistration over the State of all veterinarians, and that the Board co-operate with the Association and profession for the accomplishment of this purpose; that the Secretary write Dr. Jobson relative to the proposed legislation and confer with the Board.

On motion, the meeting adjourned.

W. HORACE HOSKINS,
Secretary.

A. V. M

Secretary Repp, of the A. V. M. A.
the following announcement relative to
meeting:

The Canadian Pacific Railway, the
Canada Atlantic Railway have granted
third fare for the round trip, certificate p
and one and two-thirds fare for 49 or
England Passenger Association and the 1
have granted a rate of one and one-thir
more in attendance, and the Southeaster
grant a special rate from its territory.
territory should purchase a ticket to the
are kept in the territory of the Trunk Li
senger Association, if this latter should gr
to do, and then purchase a ticket from th
cate therefor. It is confidently expect
granted by the Central and Western P
by the Southwestern, from part of its t
made through the journals as soon as the
information will accompany the program
so that our members and others may kno
what to look for in the way of rates, a
portant bearing in deciding the questi
meeting or not.

PERSON

That veteran of the profession, I
more, Md., received the well-deserv
the A. V. C. Alumni Association at t
York City on April 3, 1903.

Veterinarians Otto G. Noack, of
Allentown; B. M. Underhill, of M
Lansdowne, were active factors as
Associations in the formation at P
organization.

Dr. Leonard Pearson, State Vet
dressed the Devon Cattle Breeders
early in the New Year.

Dr. W. N. Armstrong, graduate o
Republican candidate for trustee at (

Dr. Anderson Crowforth, of Lockport, N. Y., fills the rôle of Worshipful Master of Niagara Lodge, No. 375, F. and A. M.

Dr. W. Horace Hoskins, of Philadelphia, Pa., was one of the guests of the Young Men's Democratic Association at their Jackson Day banquet at the Aldine Hotel.

Dr. Joseph W. Parker, of the Bureau of Animal Industry, has been transferred to Stock Yards Station, Kansas City, Kansas.

Dr. Fred Stehle, graduate of the Veterinary Department of the University of Pennsylvania, has opened an office in one of the palatial boarding stables of Philadelphia.

Secretary Dalrymple, of the Louisiana State Agricultural Society and Louisiana Stock Breeder's Association, announces the annual joint convention of these bodies at Alexandria, La., on April, 22, 23, and 24, 1903.

Leonard Pearson Warner, of Philadelphia, a nephew of Dr. Leonard Pearson, died in the latter part of March, from diphtheria.

Dr. Charles E. Clayton is one of Gotham's veterinarians who abhors Sunday and holiday work. He devotes these periods to a better acquaintance with his growing family.

Dr. D. H. Udall, of St. Johnsbury, Vt., is associated with his brother in a large livery and boarding stable.

Editor Bell, of the *American Veterinary Review*, spent more than a week in bed during the latter part of March wrestling with a painful attack of the grip.

Dr. D. J. Dixon, of Hoboken, N. J., will early retire from the profession to his farm, where he hopes to spend the balance of his days among pastoral scenes and environments.

Dr. J. F. Winchester and L. H. Howard, of Massachusetts, represented the Bay State at the reunion of the A. V. C. boys in New York in April.

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W. HORACE HOSKINS, D.V.S.

WITH THE ASSISTANCE OF

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E. M. RANCK, V.M.D.,
President Pennsylvania State Veterinary Medical Association.

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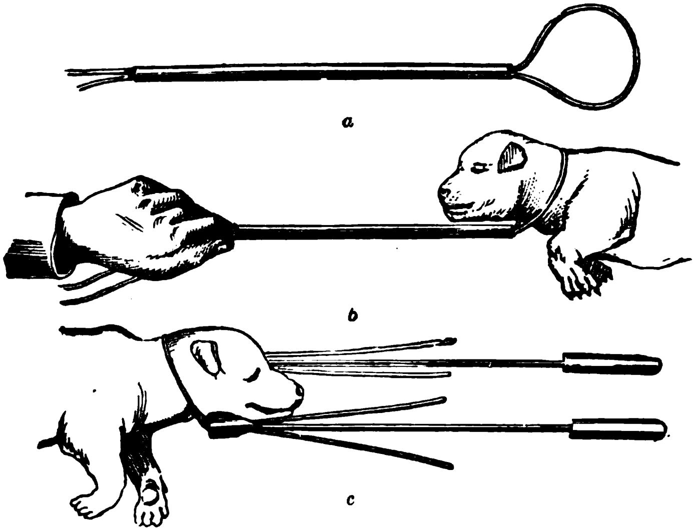

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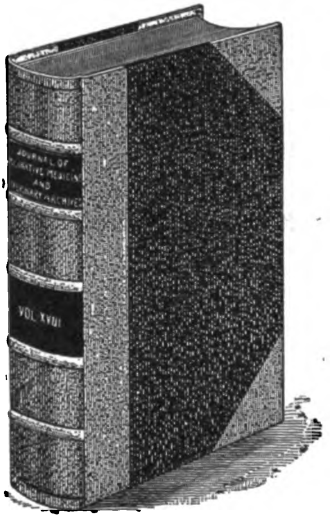

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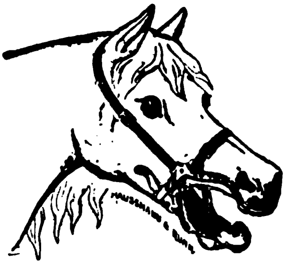

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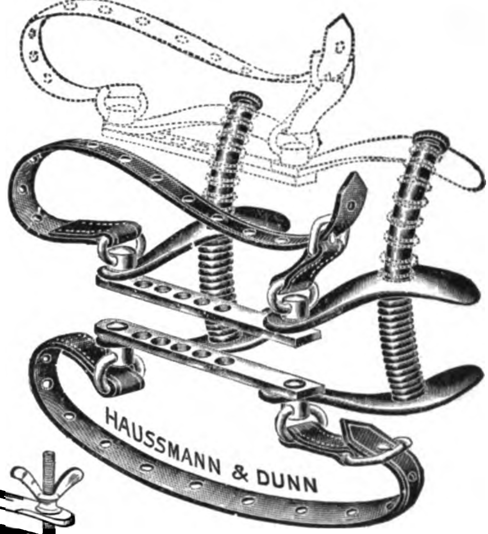

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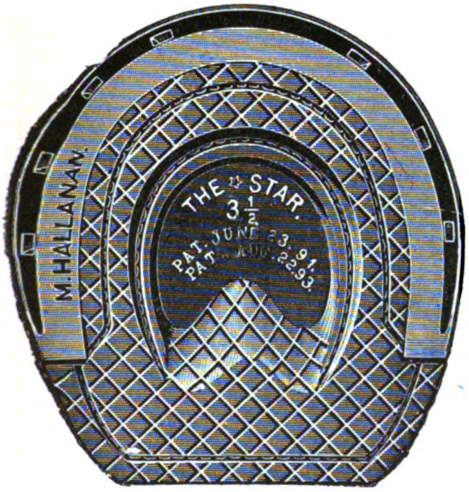
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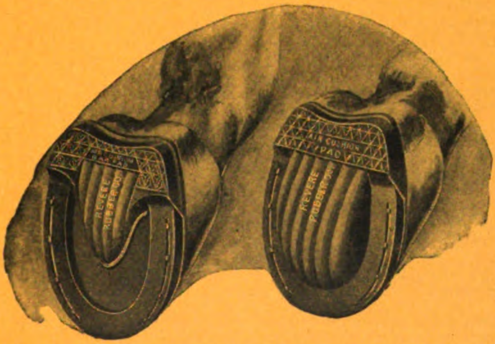
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COURTLAND Y. WHITE, M.D., Lecturer and Demonstrator in Normal and Pathological Histology and in Morbid Anatomy.

DEMONSTRATORS.

EDWIN S. MUIR, V.M.D., Instructor in Veterinary Materia Medica and Pharmacy.

B. FRANK SENSEMAN, V.M.D., Demonstrator of Veterinary Anatomy.

JOHN W. HARSHBERGER, PH.D., Instructor in General Biology, Botany and Zoölogy.

CLARENCE J. MARSHALL, V.M.D., Demonstrator of the Theory and Practice of Veterinary Medicine.

FRANZ ENGE, Demonstrator of Forging and Horseshoeing.

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EQUIPMENT.—This department provides a thorough education in all that pertains to Veterinary Medicine. Its facilities for instruction are unsurpassed in this country, and its courses extend from the first elements of Medicine to the latest researches in Veterinary Science at home and abroad. At every step the student is drilled under the personal guidance of professors in all the practical and technical details of the profession. Too much stress cannot be laid on the importance of thus combining theory and practice. It is solely by thorough and extensive training in this way that the practitioner can meet the complex problems of Veterinary Pathology—problems which, owing to the absence of communication between the practitioner and his patients, demand a higher degree of trained powers of observation than the usual cases of ordinary medical practice.

ADMISSION.—Candidates who have received a collegiate degree, or who have passed the matriculate examination of a recognized college, or who have a certificate covering the requirements stated below, from a recognized normal or high school, are admitted without examination.

Other candidates for admission are required: (1) to write an essay of about three hundred words, as a test of Orthography and Grammar; (2) to pass an examination in Elementary Physics (as in Gage's *Physics*).

Graduates of recognized Veterinary schools requiring three years' attendance may enter the third year without examination.

Students who have attended one or more sessions in a recognized Veterinary school will be allowed credit for time, but must pass an examination upon entering.

Graduates of recognized colleges of Pharmacy are admitted to the freshman class without an entrance examination, and on passing examinations in General Chemistry and Materia Medica and Pharmacy, are excused from attending lectures in those branches and from performing the practical work of the first year in the Chemical and Pharmaceutical laboratories

RESULTS.—The Graduates of this institution are most successful in their professional work, and many of them occupy high public positions.

A beautifully ILLUSTRATED PAMPHLET of 100 pages, setting forth the opportunities for a career in the Veterinary profession, and a catalogue of the Veterinary Department of the University of Pennsylvania, will be mailed free on application to

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